

GROUP MANAGEMENT IN RICE PRODUCTION AN ACTION RESEARCH

BY

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THESIS

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1992

DECLARATION


I hereby declare that this thesis entitled "Group management in rice production - an action research" is a bonafide record of research work done by me during the course of research work and this thesis has not previously formed the basis for the award to me of any degree, diploma, associateship or any other similar title of any other University or society.

Vellayani
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CERTIFICATE

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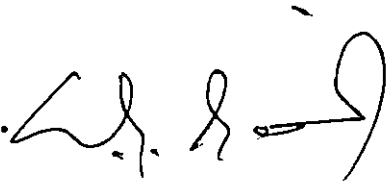
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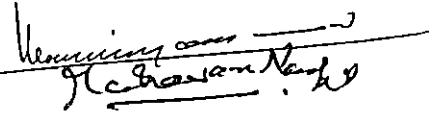
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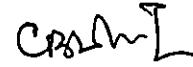
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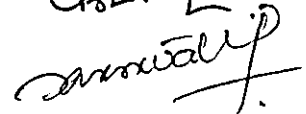


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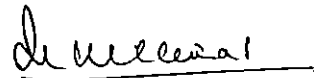
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INTRODUCTION

CHAPTER - 1

INTRODUCTION

One of the major problems faced in India is that foodgrains have to be imported to feed its growing population. The situation in Kerala in this respect is grave since the State has never been self sufficient in rice production. The internal production at the present level of around 12.5 to 13 lakh tonnes of rice is hardly sufficient to meet even 34 per cent of the requirement of Kerala. After reaching its peak level of around 13.76 lakh tonnes in 1972-1973, the production was more or less stagnant at around 13 lakh tonnes during the past years.

In the case of rice, the staple food, Kerala faces a grim situation. Rice occupies 87 per cent of the cultivated area of food crops and contribute 98 per cent to the total production of food grains in the State. While the growth rate of population is 1.75, the growth rate in rice production is only 0.21. This leaves a deficit of about 60 per cent in rice requirement of the State¹. The delivery trend in the area and production of rice aggravates the problem further. An equally alarming trend was observed in 1987-88. The area under High yielding varieties of rice

1. Action programme for Kerala 1989, Govt. of Kerala.

came down from 2.2 lakh hectare (39 per cent) in 1984-85 to 1.1 lakh hectare (19.8 per cent) in 1987-88. The main reason for this wide gap was the high cost of cultivation for high yielding varieties².

There is patently a tendency for converting rice lands for other purposes. The question is whether so much as 1.4 lakh hectares of gross area has really gone out of rice cultivation. An extent of over 70,800 hectares (1/3rd of the total area) is known to have gone out of rice during Virippu season in Malabar area including Palghat. Nearly 25,000 hectares (about 50 per cent of the total area) are shown to have gone out of rice during Puncha in Kuttanad area.

The Economics of rice cultivation compares significantly unfavourably with that of other crops. This is due to the input costs increasing more than proportionately to the price of the produce. Hence rice cultivation receives lower priority and attention to allocation of time and resources.

Having identified these precarious situations in rice farming, the scientists, the agricultural extension experts and planners discussed and several extension and development efforts were launched from time to time, with the objective

2. Economic review 1989.

of increasing rice production and reducing the cost of cultivation in the State. Some of such more important efforts are cited below to give an understanding of the efforts made in this direction.

In introducing the Intensive Agricultural District Programme (IADP) and the Intensive Agricultural Area Programme (IAAP) during the third Five Year Plan, the main thrust was for rice development based on a selective area approach. The High Yielding varieties programme initiated in 1966-67 laid emphasis on technology.

The Intensive Paddy Development programme (IPD) conceived and implemented in the early 70s was based on a new approach. For the first time, the role of the physical and organisational aspects in the production system was duly recognised. Instead of imposing global prescriptions, the problems of rice growers in a productive base namely "padasekharam" was viewed in its totality and a location specific development strategy was launched. Though this experiment was successful, it could not be sustained for long, mainly due to huge financial commitment in terms of administrative expenses. However, viewed as an educational programme, the IPD programme has many promising features. Co-operative management through a process of education and persuasion seems to be the answer (Kerala State Planning Board 1977). Kerala, being a small state with innumerable

crop combinations and possibilities could not afford to maintain crop specific extension and development hierarchies. The IPD units were then merged with the unified extension setup established under T & V system in 1980-81. The T & V system was based on a single window approach providing technological support for all the crops raised in the farm holdings. Rice being the major seasonal crop in the field throughout the year, major share of the time and effort of the extension organisation under this system also got channelised for its development.

(i) Joint cultivation of rice.

In a farmers' seminar conducted during 1957-58 at the Rice Research Station, Pattambi, possibilities of incorporating "Co-operation" in rice cultivation were discussed and it was probably the beginning of the thinking on collective implementation of the selected agricultural practices in rice cultivation. Though the Department of Agriculture conducted some demonstrations based on this decision, the programme could not be continued as a programme of the people.

(ii) Demonstration - cum-training on joint cultivation of rice

Under the auspices of FACT, rice cultivation was conducted organising the farmers in Andoorakonam Ela in Trivandrum District in 1968. The resources of the farmers

were pooled together and most of the agricultural operations were done jointly for all the farmers in the area under the direct supervision of the experts of FACT. This attempt resulted in inculcating a sense of co-operation among the farmers and reduced the cost of cultivation and increased yield of rice. Subsequently the programme was repeated in Trichur, Malappuram and Ernakulam districts. Although this was a pioneering effort, no attempt was made to follow it up in the subsequent seasons especially the sustenance of group effort.

(iii) The Group approach in farming was tried by some of the farmers' associations in Kerala such as "Pothundy Water Users' Association (1972) and Elappully, Mandalam, Valayar and Chelayar Water Users' Association " (1978). These efforts were also discontinued later.

iv) Federated Farming system

The Centre for Water Resources Development and Management (CWRDM), Kozhikode tried a system of Farming called Federated Farming system for the joint management of different farm operations without the collective ownership of means of production in 30 units from 1979 to 1984 in the command area of Kuttiyadi Irrigation Project under the operational research project. They demonstrated successfully the implementation of scientific and economic water management practices on group basis, to the rice

farmers. Somehow, this group effort was also proved to be followed up in the State extensively. Although the concept Federated Farming has many things in common with that of group management in farming, the dynamics of group management was not seen given adequate importance. Further the post-harvest practices including harvesting has been excluded from the system. The co-operative sector was also completely eliminated from the scheme.

v). Group management in Farming.

Encouraged by the success of group approach in farming practiced in Java, Taiwan, Malaysia, Mexico, Kerala etc, the Kerala Agricultural University initiated in 1975, an innovative extension management approach in the adopted villages of the College of Agriculture, Vellayani. This approach was replicated successfully in rice cultivation by the Kerala Agricultural University under Lab to Land programme of the ICAR, since 1984 at Palissery in Trichur District, Thuravoor in Ernakulam District and Kadukkakunnu in Palghat District. A conspicuous feature of this approach is that farmers are motivated to form small groups to pool their resources to handle key farm operations, without surrendering the ownership of their land. However, this demands the identification of technological parameters to be brought under group management and dynamics of group management, treating group management as a critical input. In short, there should be sufficient flexibility for each group

to decide on the technological parameters as well as group dynamics depending on the situation obtaining in the group. For managing the practices, particularly post-harvest processing, marketing etc, which cannot be handled by groups of farmers, co-operative societies could be tied up with this programme to handle such practices. These could be highlighted as the special features of the group management approach initiated by the Kerala Agricultural University as contrasted to the group approaches tried earlier in the State by the FACT, State Department of Agriculture and Centre for Water Resources Development and Management. The University's experiences, in group management in farming has also revealed the possibility of employing this approach in other agricultural experiences such as Vegetable cultivation, dairy farming etc.

Drawing from its experiences, particularly from its Thuravoor centre, the University developed a model for implementing Group Management in rice cultivation. This has been the basis on which the Government of Kerala decided to adopt the Group Management in Farming for rice development in the State, popularly termed as "Group Farming". It drew heavily from similar attempts made in this country and elsewhere in the world.

Jacob (1990) explained that Group Farming in rice - a new concept and approach ushered in during the first crop

season, 1989-90 and herald a new life and new enthusiasm among cultivators in the state and wide knowledge at National level.

The group management approach envisages super imposing of community management of key farm operations over individual farm, ownership and initiative with the objective of efficient management of farmers' resources to reduce cost of cultivation and to increase agricultural productivity even in microscopic farm holdings. This approach is important in the Agro-socio-economic context of Kerala, viz. small holdings-size, unscientific farming practices being followed by the farmers, part-time farming, varied agro-climatic situations, highly individualistic farmers etc.

Group Farming in Kerala.

Based on the Kerala Agricultural University experience, the Government of Kerala implemented Group farming in rice cultivation to start with in an area of 60,000 hectares from December 1988 onwards. The State Government subsequently introduced this approach in Coconut cultivation (1989) and in Pepper cultivation (1990).

According to Raghavan (1990) comparatively high cost of cultivation makes rice culture a less attractive occupation. The only way to find out a solution to escape out of this vicious circle is to organise farmers into group and to

provide them all inputs to practice the modern rice cultivation techniques by pooling the necessary resources, which they may not be able to procure individually. It was the increase in productivity in rice cultivation in Kerala which prompted the Government to adopt a new strategy of vast involvement of farmers to take up rice cultivation by adopting new farming technology. Group farming is in effect a massive technology transfer programme in which thrust is given to unite farmers and take up rice cultivation.

Menon and Bhaskaran (1990) suggested that to augment agricultural production and productivity of small and marginal farms, one way out is to adopt group management of resources which has potentialities to stem some of the weaknesses of the individual farm system, especially in the optimum utilisation of available resources. This approach could help in overcoming the limitations imposed by the smallness of the farm, deciding sharing of risks, responsibilities and the fruits of new farm technology. Group management approach is important in the agro-socio-economic context of Kerala, they opined. Nair (1990), after analysing the concept of group management in farm fully endorses the need for incorporating the management input as an essential ingredient for the profitable out turn of agricultural operations.

Rationale behind group management

The very rationale of group management in farming is to motivate farmers to form groups or associations with the primary objective of superimposing of community or group management of key farm operations over individual initiative and land ownership. Obviously the thrust is to undertake key farm operations such as raising of community nursery, pesticide and fertilizer applications, water management, marketing and processing under group management which individual family cannot hope to achieve efficiently and profitably. The main feature of this system is to encourage individual initiative and enterprise by providing them with common services such as tillage, irrigation, inputs supply, etc. which will certainly make cultivation more profitably by spreading overhead costs as also by ensuring scientific cultivation.

Management as a critical input

However, a most prominent feature is the introduction of management as a critical input in making farming operations more efficient and cost effective. But group management does not mean that agricultural operation has to be decided and managed by the group. Initially some of the operations may not be possible to be brought under group management. A uniform and universal norm or procedure is neither desirable nor feasible with regard to the selection of activities under group management. Within the broad

frame work of group management of farming, sufficient flexibility to suit the location specific needs, requirements and aspirations, resources and constraints are to be provided, for ensuring local participation as well as for promoting their individual creativity and cohesion of the group.

Having identified as the most suitable among the many extension methodology tried in Kerala state, group management in rice cultivation is proposed by the Government of Kerala to be implemented throughout the rice tracts of Kerala. Before that, a systematic action research to go into the details of study, its technological, administrative, socio-psychological parameters would be immense use, it was felt. With this broad aims in mind the following objectives were framed out for the present study.

Objectives

1. To analyse the reasons for success or failure of earlier group approaches in rice production in Kerala.
2. To analyse the constraints in increasing rice production in a selected farming community where group approach was not followed and to analyse the reasons therein, for not following group approaches.

3. To develop and implement an action programme in the farming community to overcome the identified constraints through group management.
4. To monitor and evaluate the impact of the action programme on the agro-socio-economic conditions of the farmers.

Scope of the study

A study of this kind will help the administrators to know the technical details, advantages and other limitations of such group efforts so that a political will can be developed to formulate and implement such programmes.

The study will have immense practical utility in the effective implementation of group approaches on a wider basis for different crop enterprises.

Group management study provides a model for effective transfer of technology with varying agro-socio-economic conditions.

It helps to streamline programmes for increasing the productivity of farm land.

It provides to bring out a methodology, to maximise farm profits and to entrust post-harvest processing and marketing which cannot be undertaken by small groups.

A study like this provide an opportunity to consider

the harmonious group atmosphere since they work in close association throughout.

Since the study is an action research programme, there is enough scope to bring about changes in the action programme as and when required under different agro-socio-economic conditions.

Limitations

The present research formed a part of the Doctorate degree programme which was single student investigation, and hence it has all the limitations of time, money and other resources. These limitations determined the restricted selection of Village and farmers for the study and also forced to restrict the sample size. However, careful and rigorous procedures have been adopted to carry out the research as systematically as possible.

The Group management study results may not be generalised to all the farming community since the action programme will have to be changed, depending upon the changing situations.

The success of the action research programme depends on the active co-operation of various agencies and participating farmers and hence the control of the researcher over the experimental programme was not complete.

Inspite of these, it is believed that the findings of the study and conclusions drawn would stand the test of more rigorous field observations.

THEORETICAL ORIENTATION

C H A P T E R - 2.

2. THEORETICAL ORIENTATION

The objective of this chapter is to develop the concept of group management and to establish theoretical frame work for the study based on ideas and concepts gathered from review of existing literature of both theoretical and empirical nature. As studies directly pertaining to group management in rice production were few, the review of literature on related aspects of group management was also made. Since this study was based on action research design, the relevant available literature on action research were also reviewed and presented under different heads as shown below. At the end of each part, generalisations have been made to develop the concepts and other explanations used in this study.

- 2.1. Concept of group management
- 2.2. Various group approaches
- 2.3. Reasons for success/failure of earlier group approaches.
- 2.4. Constraints in increasing rice production.
- 2.5. Concept of action research.
- 2.6. Impact of group management and action research variables.
- 2.7. Theoretical model of the study.

2.1. Concept of group management

Group management is a term comprising two aspects namely; group and management. To develop the concept of group management, it becomes necessary to analyse these two terms.

2.1.1. Group

Bales (1950) defined the small group as any number of persons engaged in the interaction with each other in a single face-to-face meeting or a series of meetings, in which such member receives some impression or perception of each other member distinct enough so that he can either at the time or in later questioning, give some reactions to each of the others as individual person, eventhough it be only to recall that the other person was present. ~~Sherif~~ **(1954)** describes that for a collection of individuals to be considered as a group, there must be some interaction. In addition to the interaction, four features of group life emerges as a collection of individuals, develop into a group as follwos:-

- i) The members share one or more motives or goals.
- ii) The members develop a set of norms.
- iii) If interaction continues, a set of roles become established.
- iv) A net work of interpersonal attraction develops on the basis of 'likes' and 'dislikes' of members.

Whyte (1965) described the group as a system of mutual obligations. A group consists of individuals whose behaviour is determined largely by the expectations of other members.

Zander and Cartwright (1967) defined group as a collection of individuals who have relations to one another that make them interdependent to significant degree. A group is two or more persons who are interacting with one another in such manner that each person influences and is influenced by each other person.

Chitambar (1973) defined group as a unit of two or more people in reciprocal interaction or communication with each other.

Bhatnagar and Dahama (1985) defined group as an aggregation of two or more persons among whom there is an established pattern of interaction.

The foregoing reviews clearly indicate that there existed oneness in describing a group that a group consists of two or more people having interaction to achieve common goals. Consequently in this study also, group has been conceived as two or more farmers having close interaction with a collective behaviour, common interest and avocation in terms of paddy cultivation.

2.1.2. Management

According to the Webster's third new International dictionary, management is the action of managing, judicious use of means to accomplish ends. In Oxford dictionary, the meaning of management is given as the action or manner of managing, the application of skill and care in the manipulation, use, treatment or control (of things and persons) or in the conduct (of an enterprise, operation etc.). The Encyclopedia of social sciences described management as the process by which the execution of a given purpose is put into operation and supervised. The combined output of various types of grades of human effort by which the process is effectual is known as management. Again, the combination of these persons who together put forth this effort in any given enterprise is also known as management.

Appley (1943) simply defined management as getting things done, through the efforts of the people.

Fayol (1949) viewed management broadly as the conduct of a business through a continuous process of improvement and optimisation of resources via the essential management function.

Terry (1958) defined management by stating "management is accomplishing a pre-determined objective through efforts of other people".

Another definition given by Terry (1958) is that management is a distinct process of planning, organising, activating and controlling performed to determine and accomplish the objectives.

Johannson and Page (1983) stated that management is the effective use and co-ordination of resources such as capital, plant, materials and labour to achieve defined objectives with maximum efficiency. They again viewed management as essentially a decision making process and to manage well, a manager has to take right decisions at right time.

Koontz et al. (1986) conceptualised management as the design of environment in which people working together in

groups can accomplish objectives and they meant design as the application of knowledge to a practical problem for the purpose of determining the best possible results for that situation.

Guruge (1986) viewed management as the process of involving (i) judgement and decision in determining plans and using data to control performance and progress against plans and (ii) the guidance, integration, motivation and supervision of personnel carrying out operations.

Massie (1987) viewed management as the process by which a co-operative group directs action towards common goal. To Chari and Nandapurkar (1987) management is the effective use

of people money, equipment, materials and methods. Aggarwala (1989) defined management as the process or act of directing operations of an organisation or segment of it, to realise the established aims.

The reviews presented in the foregoing pages indicated that there is a common agreement that management is a set of activities or functions directed towards attainment of goals. As a corollary to the general agreement on management in this study also, management is considered as the functions directed towards achieving better yield and profit in rice cultivation.

2.1.3. Group management

In order to arrive at the Group management concept in the light of the terms Group and Management as applied to group approaches in farming, the views expressed on group approaches were reviewed.

Schiller (1959) remarked that group management is rather a form of individual farming on co-operative lines.

Tyagi (1968) concluded that the theme of co-operative farming has become a subject of national importance and an object of searching analysis following the resolutions of Indian National Congress on agrarian organisational pattern

adopted at its sixty fourth session at Nagpur.

Dorner and Kanel (1975) explained the term, group farming as agricultural production co-operatives and other forms of group or collective farming. Sometimes this is advocated on the basis of ideological political concerns, they observed.

Galeski (1975) while explaining a typology of group farming classifies the same as:

i) Collective farms created by believers in an ideology which places a higher value on non-economic than economic goals. This type includes religious communes, collective farms created by people who project contemporary industrial civilization with its system of values and farms created by groups of believers in a particular mission of their nation or class.

ii) Collective farms created by landless families who were able to acquire the land but unable to establish and operate individual family farms.

iii) Collective farms organised by government in order to achieve nation-wide economic and social goals.

iv) Collective farms organised by farmers in order to get the advantage of a large operation, more effective use of land, manpower and capital and consequently higher economic returns.

Varma (1977) explained the importance of block demonstration as a new concept of agricultural extension. Here the farmers are motivated as a group to adopt new techniques in blocks of land instead of half an acre here and another half an acre somewhere else.

Wickham (1977) suggested that there is growing interest in South East Asia in greater farmer participation in irrigation and in an expanded role for water user's associations in irrigation development.

Ghosal (1982) reported that the farmers in each chak become as interested group when indiscipline of some other group deprives them of their share of water comradeship in adversity motivated to work together within the group.

Menon (1987) while explaining the Kerala Agricultural University's experiences in group farming approaches, based on many Lab to Land trials, concluded that the yield could be increased substantially through this approach.

Hali (1987 and 1990) and Pillai (1990) indicated that in group farming, the individual farmer retains his ownership on land, yield as well as decision on management practices. Only operations, purchase of inputs, water management, plant protection and the like are undertaken on a group basis.

Swaminathan (1988 and 1989) suggested that the growth of village level associations for sustainable agriculture

has to be fostered. Unless the people of every village or watershed or the command area of an irrigation project are intimately involved in the sustainable utilisation of natural resources, particularly land and water, it will be difficult to arrest environmental degradation. He emphasised that there is need for immediate attention to promoting group co-operation among farming families. He proposed that in the area of management technology, particular attention will have to be paid to combining the advantage of individual initiative and group endeavour.

"Hindu" daily (1988) reported that the Kerala Agricultural University through their Lab to Land programme in the farmers' fields of Thuravoor, demonstrated an innovative venture namely group management in rice cultivation successfully. Due to this effort, the small and marginal farmers could step up their rice yield considerably with less cost of production.

Menon et al. (1989) revealed from the Kerala Agricultural University studies, the possibility of employing successfully group management approach in other agricultural fields such as vegetable cultivation, dairy farming and the like.

According to Menon and Bhaskaran (1990), the basic concept of group management approach is to superimpose group management of key farm operations over individual farm

ownership and initiative with the objective of efficient management of farmer's resources to reduce cost of cultivation and to increase agricultural productivity even in microscopic farm holdings. This approach is important in the agro-socio-economic context of Kerala namely small holding size, unscientific farming practices, part-time farming, varied agro-climatic situations and highly individualistic farmers, they opined.

Mohanan(1989) while narrating the group farming system in India, remarked that when the small farmers cultivate their land individually, their holdings being small, they may not obtain the advantage of large scale farming. Hence, if these small farmers come together, form a society and cultivate their land collectively they can reap the benefits of large scale farming, such as mechanization, labour efficiency, marketing economics and the like, increasing ultimately the agricultural productivity.

Rao(1989) suggested that public policies should be at promoting group co-operation and endeavour in land reclamation, waste land development, irrigation water management, drainage improvement, command area development, rodent control, input supplies and the like for higher income.

Venkataramiah et al.(1989) reported that group farming

is distinct from co-operative farming. Here the individual farmer retains land ownership. Farm operations, input purchases, management and plant protection are, however, undertaken on a group basis.

Bhaskaran(1990) suggested that, all over the world, there is a new recognition for group activities and one of the most significant areas has been man's collective pursuit in the sphere of agriculture. Small groups of farmers have beneficially combined their resources to achieve greater agricultural productivity. He concluded that in all the group activities there was an implication of collective/co-operative action.

Harikumar(1990) while briefing the importance of group farming quoted that productivity of Indian agriculture is low when compared to other countries, one reason for this low productivity is lack of effective farmers' organisations.

Jacob(1990) explained that group farming which kept ownership rights and management freedom intact but encouraged collective decision, collective action for reduced operational cost, increased efficiency, right management decisions and higher productivity and profitability was well received by the farming community.

Nair(1990) concluded that the basic thrust of the concept of group management lies in the process of pooling

individual resources into community resources.

Vijayan(1990) stated that the main theme of group farming is to revitalise the rice cultivation through group efforts so that farmers will be able to bring down the cost of cultivation and get higher yields through the adoption of better technology.

Sharma and Maurya(1991) suggested that to control the disease of important oilseeds and pulses, a community approach is most suited. In order to develop a problem-solving system there must be a community extension approach rather than individual farmer approach.

The reviews presented above clearly point out that group approach in agriculture refer to doing selected operations in agriculture enterprises including post harvest processing as well as procurement of inputs by a group jointly keeping the right of ownership of resources and profit for individuals. The element of management is performing the activities designed to achieve the object of formation of group as well as sustaining the group action for operations and procurement. Thus in this study group management refers to the sum total of the functions of formation of group and group action in rice cultivation operations.

2.2. Various Group approaches

To gain an insight into the modalities of group management approaches, literature on group management approaches was reviewed and the same is furnished in the following pages.

2.2.1. Group management approaches abroad

Schiller(1959) noted that in Germany some common institutions made headway on co-operative basis in fields like laundries, bakeries, deep freezers and the like. There were also some examples in West Germanay for the systematic use of co-operative methods in farming operations but without turning to collective or joint use of lands.

Moczarski(1973) reported that in a successful project in Lesotho, some fifteen farmers agreed to grow potato in their fields with credit assistance under the guidance of a pilot project on a collective basis and the results were encouraging.

Hamid & Ahmad (1979) reported that one of the projects undertaken in Malaysia by Rubber Industries Small Holders Development Authority was in group processing centre. It was aimed at providing facilities to small holders to process and sell their rubber as a group and also to promote the co-operative concept. Group processing centre project was started under the Rubber Research Institute of Malayasia in the early sixties.

Duad(1989) reported that Malaysia has been experimenting with various forms of group farming systems, including the loosely structured farmers co-operatives to a well defined, well structured and centralised land development schemes. Many departments, organisations and authorities were set up at State and Federal levels to promote these types of group farming activities.

Venkataramiah et al.(1989) reported that group farming in Pubela Valley, Mexico showed an increased per acre corn yield. Group farming was started in an area, for a special and an important rainfed crop in Senegoel country to increase per acre yields. Small farmers were provided with light programme with an emphasis on input management. The first two years of farming was a roaring success with an average yield of the crop jumping to a considerable extent.

2.2.2. Group approaches in India

Kumar(1978) and Mohanan(1989) explained the Gamphira Co-operative farming society in Gujarat as a successful experiment in collective efforts. Before the inception of this society, the farmers were living on the verge of starvation. Both social and economic levels of members of the society improved due to the collective effort.

FACT(1989) reported that, group farming facilitated at Patranhalli in Mysore, proved as a success with the

participation of Dena Bank. Villagers developed a sense of participation in the programme and are keen to join the common development programmes.

In a report of the Regional Agricultural Research Station(1989) Hyderabad, it was indicated that group farming promoted by extension education unit resulted in educating the farmers on proper management practices. As a result, the per acre income of the farmers also increased.

The Syndicate Bank foundation(1989) initiated farm clinic group farming project at Barakur and Hosala village of Udipi taluk in Karnataka to help the small and marginal farmers to raise their living standard. Group farming had helped to reduce overall expenses of paddy cultivation to a great extent following scientific guidance from professional and judicious application of inputs and pesticides.

Mane(1991) stated that in two villages of Saurashtra region of Gujarat, community effort on rat control was effectively used. This programme had great impact in nearby villages and the farmers have started adopting this method of rodent control.

2.2.3. Group approaches in Kerala

George(1969) reported that at Andoorakonam in Trivandrum District the resources of the farmers were pooled together and most of the agricultural operations were done jointly

for all the farmers in the ela¹ under the direct supervision of the experts of FACT. Subsequently the programme was repeated in Trichur, Malappuram and Eranakulam Districts.

Hali and Nair(1987) reported that co-operative farming, collective farming and the like passed on without making any change, so the necessity of a programme like group farming was suggested as a solution under Kerala condition. The entire community of paddy cultivators all over have realised that there are not many alternative approaches left other than group farming for the profitable cultivation of rice. Planners, economists, scientists, technologists, farm leaders and policy makers fully endorse it and look forward for successful implementation of the concept at the microlevel, they urged.

Menon and Bhaskaran(1989) reported that based on the experience in group farming in Java, Bali, Taiwan, Malaysia and Mexico, the Kerala Agricultural University initiated an innovative approach known as group management in rice farming under the lab-to-land programme at Thuravoor in Ernakulam district, by overcoming the constraints experienced in the attempt of various agencies in the State. This approach envisages superimposing of

1. 'Ela' is a contiguous stretch of rice fields with all facilities for its cultivation.

community management of key farm operations over individual farm ownership and initiative with the objective of efficient management of farmers' resources to reduce cost of cultivation and to increase agricultural productivity even in microscopic farm holdings. This approach is important in the agro-socio-economic context of Kerala namely, small holding size, unscientific situations and highly individualistic farmers.

Mohan(1989) remarked about ela programme of Kerala that the ela committee with the technical advice of the qualified agricultural personnel posted exclusively for this purpose was helpful in assessing the requirements in respect of credit, inputs like seed, fertilizer, agricultural machinery and the like and making arrangements for their supply in time. The committee could generate local enthusiasm and organise voluntary force for providing the infrastructure.

Kerala State Planning Board(1989) reported that group farming for rice introduced during the year was very effective in revitalising the rice production scenario with new vigour and enthusiasm and mass participation. The productivity of crops in general was encouraging. Almost all the major crops recorded positive growth in productivity during the year. The objective of this scheme was to invigorate rice production by improvement in productivity

and reduction in cost through group management. Tillage operation using tractors, procurement and transport of seeds, fertilizer and the like, community nursery for rice, plant protection operation, water management and such other activities amenable for group action were identified and organised on a community basis.

Balachandran(1990) suggested that in addition to paddy, group action in the management of coconut garden was also thought of. As a beginning, group management in coconut was started in Onattukara tract comprising of Mavelikkara, Karunagappally,^{and} Karthikappally taluks where the root wilt disease: was severe and the holding size very small. This venture is attracting the farmers to a greater extent and more and more farmers coming forward to form organisations and start functioning on group basis, he reported.

Menon(1990) reported that the centre for Water Resources Development and Management (CWRDM), Kozhikode tried a system of farming called federated farming for the joint management of different farm operations without the collective ownership of means of production in 30 units from 1979 to 1984 in the command area of Kuttiyadi Irrigation Project under an Operational Research Project. The result was very encouraging, he observed.

Bhaskaran(1990) reported that in the case of Vettampalli experience, sixty five farmers of the ela were

organised into a group who collectively managed certain key agricultural practices for rice, to have maximum impact. The programme covered in an area of 15 hectares and the farmers recorded an all time high rice yield of 3.4 tonnes per hectare.

2.3. Reasons for success/failure of earlier group approaches

Kerala State Planning Board(1977) in an evaluatory study of Intensive Paddy Development Programme revealed the following reasons for the success or failure of earlier group approaches.

i) The ela programme implemented in Kerala was not a successful one since the programme had not resulted in a large breakthrough in rice production or any significant reduction in cost.

ii) Under federated farming, the concept has many things in common with that of the group management in farming, the dynamics of group management was not seen given adequate importance. The post harvest practices including harvesting had been excluded from the system. The co-operative sector was also completely eliminated from the scheme.

Swaminathan(1989) remarked that the green revolution in Punjab was not a miracle. It happened only because of the pre-requisites for its success existed in the mid sixties in Punjab itself. The pre requisites were (a) land

consolidation (b) owner cultivation resulting in a long term stake in land. (c) rural communication (d) rural electrification and (e) dynamic agricultural university.

Mohan(1989) based on the review of the activities at Andorkonam ela programme revealed that, the ela programme was beneficial to the farmers only in terms of technical guidance at field level, supply of quality seedlings, subsidised farm inputs and agricultural inputs. The participation of beneficiaries in planning, implementation and evaluation of the programme was meagre, he observed.

Rao(1989) reported that for small and marginal farmers who face many structural shortcomings, organising them into group farming proved to be^a better solution. So a well organised stable group is a must for the success of such operations.

Wong(1989) reported that even though political manipulation at local level was one of the reasons for the success of group farming, past experience however, did not support this argument. Therefore, the institutional mechanism of group farming projects should have to be integrated with the existing grass root level. In many successful cases of group farming, it was seen that a key role was played by a charismatic and dynamic leadership. Successful group farms are mostly seen in economies where

effective agrarian reform measures have been undertaken. From the experiences in paddy Group Farm in Transperak, Malaysia, Wong again found that the resources like land, labour, capital, machinery and administrative personnel were well utilised. Another reason for the success of the group management effort was the selection of the farmers to join the project right from the initial stage of developing the land.

Harikumar(1990) reported that the success of group farming programme depended on effective transfer of technology, joint action at the microlevel by farmers, extension staff, farm leaders and various input agencies. He pointed out that one reason for the low productivity was lack of effective farmers' organisations.

Pillai(1990) concluded that the service of Krishi bhavans was highly useful in organising field-based agroclinics which served to a great extent in the success of group farming.

From the above reviews of the pioneering studies of Kerala Agricultural University and related studies in this field, it could be visualised that a well organised group with accepted leadership, assured input supply and wholehearted co-operation of the various connected departments were responsible for the success of earlier group approaches. Lack of co-operation among members and

lack of their involvement in the planning, execution and evaluation phases were the reasons for the failure of earlier group approaches. In the light of the above analysis, it could be concluded that well organised group with the above parameters would definitely help group farming in rice cultivation to achieve the desired results.

2.4 Constraints in increasing rice production

A knowledge on the constraints in rice production is very much essential to formulate group action programmes for Rice. Hence constraints identified in rice production were reviewed and the same is furnished as follows:

2.4.1 Constraints experienced by the farmers in the States other than Kerala

The Programme Evaluation Organisation (1968) in its report on the evaluation study of high yielding varieties stated that only a few farmers adopted the package of practices in full. The lack of timely availability of fertilizers, chemicals and equipments were reported to be a major reason for the partial adoption of package of practices of rice.

The Programme Evaluation Organisation(1969..) in its report for high yielding varieties of rice and jowar for rabi 1968-69 revealed that attack of pests and diseases, marketing problems, untimely supply of fertilizers, non-availability of plant protection chemicals and lack of irrigation, problems of easy and adequate credit and labour shortage and high cost of cultivation as the major constraints. It was also pointed out that financial problem, costly inputs and labour, inadequate and untimely supply of inputs, and lack of irrigation facilities were the major reasons for the discontinuance of high yielding varieties by 75 per cent of the farmers of Mysore State.

The Programme Evaluation Organisation (1969) in its reports for Kharif and Rabi 1968-69 on the evaluation of high yielding varieties of paddy, wheat, and jowar stated that lack of timely availability of fertilizers, low plant protection operations, high incidence of pests and diseases, lack of irrigation, low price for the produce and high cost of inputs were the major means for the spread of high yielding varieties.

Lack of knowledge, as reported by Anbalagan (1974), was

the main limiting factor for non-adoption of "Rice" technologies in Tamil Nadu.

Pal(1975) found that the major constraints to yield were related to the difficulties in obtaining seeds, chemicals, fertilizers and credit, inadequate irrigation, water and attack of pests and diseases in the case of rice in Orissa.

Parthasarathy(1975) reported that the main constraints in the use of modern varieties of rice in the west Goadvary tract of Andhra Pradesh were water management, pests and diseases and shortage of fertilizers in the wet seasons.

Rajagopalan(1975) reported the constraints in rice cultivation in North Arcot district of Tamil Nadu. The major economic constraints were related to distribution of irrigation water, the lack of capital for the purchase of inputs, and inadequate supply of fertilizer and plant protection chemicals.

Tripathy(1982) from his study on the technological gap in adoption of new rice technology in coastal Orissa

concluded that 80.17 per cent gap in the yield was caused by technological gaps in various components of the high yielding rice technology. Water management was the most important crucial factor (20.34 per cent) followed by disease and pest control (17.92 per cent) and nitrogen application (12.37 per cent). The ecological factor like temperature, rainfall and sunshine intensity together contributed to the extent of 19.83 per cent to the yield gap.

Singh(1982) reported that in the case of traditional varieties, the reasons for non adoption of improved farm practices were lack of information, small holdings, unsuitable farm situation, lack of easy, timely and adequate availability of inputs, financial limitations and labour scarcity, while lack of timely and adequate irrigation, lack of easy, timely, and adequate availability of inputs, financial limitations, high cost of inputs, and susceptibility to pests and diseases were the reasons in the case of high yielding varieties of rice.

Tripathy (1982) in a study conducted in coastal Orissa to find out the constraints in the adoption of high yielding rice technology, identified that the major constraints were pertained to the credit organisations, service and supply and technology transfer. They have suggested a development strategy to bridge technological gap

and to reduce yield gap.

Rajasekhar(1984) observed that 61.82 per cent of paddy growers quoted high cost of inputs as the main reason for the yield gap, followed by lack of own funds(60.00 per cent), inadequate power supply (53.64 per cent) and incidence of diseases (42.27 per cent) in Madurai district of Tamil Nadu.

Haque(1985) in his report on the factors accounting for the low yield of rice in West Bengal, stated the major constraints to high yields of rice as indicated by farmers according to importance. These were high prices of inputs, lack of adequate irrigation, lack of suitable plant protection manures, lack of capital, absence of land reclamation, particularly soil and fertilizer conditioning, irregularity of rainfall and lack of appropriate water management practices.

Katoch (1989) reported that the constraints to rice production in Himachal Pradesh were susceptibility to several diseases particularly blast, glume blight and brown spot, low temperature stress due to cool irrigation water and low ambient temperature at seedling and reproductive stage, initial drought damage particularly to the rainfed crop, moisture stress in the post-monsoon period, low fertility and lack of information among farmers on rice agronomic practices.

The constraints reviewed above suggest that the major inputs like seeds, fertilizer, plant protection chemicals, finance, assured water supply and sound extension system are highly essential for increasing the yield from high yielding rice varieties and other crops. These constraints are in line with the constraints experienced by the rice farmers under group management programme also.

2.4.2. Constraints experienced by the farmers of Kerala.

The Kerala State Planning Board (1977) in an evaluation study of the high yielding variety programme in Kerala, reported the physical, institutional and administrative constraints in the implementation of the programme in the State. The major problems reported were with regard to supply of fertilizers, incidence of pests and diseases, lack of irrigation facilities, non-availability of plant protection chemicals and inadequate credit supply.

Khaleel(1978) and Rajendran(1978) reported that the constraints perceived by farmers as most important in adopting high yielding rice varieties were the requirement of high doses of fertilizers for the high yielding variety seeds, lack of financial assistance, low straw yield, lack of irrigation facilities, higher labour input and high incidence of pests and diseases.

Sivaramakrishnan (1981) reported lack of irrigation

- facilities as the most important constraint in the adoption of high yielding varieties of paddy.

Abraham (1983) reported that the rice pest problem is highly complex, characterised by the incidence of a multitude of destructive pests, such as stem borer, brown plant hopper, leaf folder, gall midge, leaf thrips, rice bug etc. The avoidable losses in high yielding varieties of rice in Kerala due to maximum protection from pests have been estimated to range from 1014 to 3839 Kgs per hectare.

Kerala Agriculture University (1983) identified the various constraints limiting rice production in Kerala. These include inadequate coverage of high yielding varieties, lack of adoption of recommended cropping pattern, lack of suitable varieties, for low level technology, shortage of quality seeds for the required quantity at the appropriate time, inadequate drainage facilities, scarcity of irrigation water at the critical stages of plant growth, high weed infestation in the dry sown crop, non adoption of fertilizer recommendation as per package of practices, inadequacy of organic matter application, non adoption of soil test crop recommendations, low efficiency of applied fertilizer, micronutrient deficiencies limiting crop growth, lack of improved agricultural implements, inadequacy of plant population in the field, want of proper post harvest technology, inadequacy of timely information and advice to farmers, lack of identification of different constraints at

the microlevel and lack of co-ordination at the Government level between the concerned departments.

Panicker (1983) reported that decline in area under rice is the major reason for low production, the reason being low price for rice and high labour cost and cost of cultivation.

According to Menon (1984), high cost of production is the major problem in rice cultivation in Kerala and the greatest inflationary element in the cost of production is the cost of labour and its decreasing productivity.

Gopalan (1988) reported that the economics of rice cultivation compares significantly unfavourably with other crops due to the input costs increasing more than proportionately to price. Compared to other crops, cultivation of rice is least remunerative, arduous and risky and requires high standards of management including day to day attention, since most of rice growers cultivate other crops as well, rice cultivation receives a low priority and attention in allocation of time and resources which results in switching over to other crops.

Suseelan (1988) reported that rice crops grown in varied agro-ecological situations are subjected to stress which is specific to the situation. He also added that inspite of the favourable soil and climatic conditions of the

state, the coverage under high yielding varieties is declining. Productivity of high yielding varieties also registered a steady decline during the first crop season and stagnant during the second crop season. Regarding cost of production, it is highest in the medium holdings. Apart from high cost of labour, non availability of labour at the planting and harvesting seasons is a serious problem confronting rice cultivators. Other constraints reported were non availability of sprayers and skilled workers for operations like spraying at the time of need and lack of onfarm development for effective water control.

Nair (1990) stated that high cost of production, low profitability, low coverage of high yielding varieties, low adoption of agricultural inputs especially fertilizers, high cost of fertilizers, lack of availability and high cost of manure, high cost and non availability in time of plant protection chemicals, problems of rodents, lack of credit facilities, poor irrigation facilities and water management, high wage rate and non availability in peak seasons of agricultural labourers were the major constraints experienced by the farmers of Kerala.

Nair (1990) stated the problems of rice cultivation in Kerala as follows; "high rainfall coupled with undulating topography resulting in rigid but multiple micro environmental conditions, leading to multiplicity of crops,

dominance of perennial crops and consequent rigidity in cropping pattern, vulnerability of state's agriculture to external forces, out flow of agricultural surpluses from the state and consequent depletion in capital for investment, ownership pattern and predominance of hired labour component and discouragement to labour intensive land use, and technology"

2.3 concept of action research.

2.5.1. The major emphasis of the present study was on the analysis of group management approach through action research. To plan the study an understanding of the past experiences in action research was thought to be necessary. Therefore such studies were reviewed. The reviews are presented below.

Desai (1983) explained action research in the following words. "Given the objectives of the research group, action research in this sense is a search for a) appropriate agencies, appropriate programmes and appropriate methods for implementing programmes and b) an appropriate strategy to -

-influence prime actors to facilitate the implementation of programmes.

Fallon (1983) explained action research as to take action as a result of research findings. Action research as originally conceived, followed the scientific, method quite closely during the research phase. According to the organisational development action research model, action is taken as indicated by the initial data collected and this action in turn generates new data to be collected and acted on.

Goode and Hatt (1983) summarises action research as a part of programme aimed at changing existing conditions, whether slum conditions, race tensions and prejudice or the effectiveness of an organisation.

Bennet (1985) added that action research is a ~~form~~ form of research where action is both an outcome of the research and a part of the research-process. It aims to tackle problem which have relevance to theory and to report the findings to sponsors, scientists and practising professionals via reports and professional journals. Action-research thus has three taskmasters - the sponsor, the behavioural science practitioner and the scientific community. The main purpose of action research is to improve the stock of knowledge for the sponsoring organisation. It is important to bear in mind that the Researcher is involved in the change process,

at least by providing information collected through surveys etc. to a group of organisation members, possibly before, during and after the change. Action research involved both Researcher and client working on problems using research as it is generated to improve the functioning of the organisation.

According to Best and Kahn (1986) action research is focussed on immediate application, not on the development of theory or on general application. It has placed its emphasis on a problem in a local setting. Its findings are to be evaluated in terms of local applicability, not universal validity. It is important to realise that research may be carried on various levels of complexity. Actually, many of the early studies in the behavioural sciences were useful in providing needed generalizations about the behaviour or characteristics of individuals and groups. Subsequent experimental studies of a more complex nature needed this ground work information to suggest hypotheses for more precise analysis.

Ramirez (1986) while detailing about participatory action research, concluded as follows.

i) Action research is considered as a set of decisions taken collectively on how to systematically gather information towards some theoretical and practical objective. Thus the study itself become an independent

variable which together with the process in education and organisation become a single strategy for change or transformation.

ii) Reality in this type of research is made dynamic by the interaction and communication processes among people who themselves are the subjects of research.

iii) The research study in itself is secondary to the interaction and communication process of participating groups as well participating individuals within the group.

Rao et al (1987) defined action research, as the process of systematically collecting research data about an on going system relative to some objective, goal or need of that system, feeding these data back into the system, taking actions by altering selected variables within the system on the data and on the hypothesis, and evaluating the results of actions by collecting more data. Action research is a particularly useful tool as a planning and diagnostic intervention. It is also useful at some other stages like feedback and evaluation. Action research emphasises information collection, analysis coupled with a feed back process portraying more or less a complete picture of the basic organisation development methodology, they added.

Subramaniam (1987) reported that action research which is perhaps a by-product of the post-war development decades makes full use of the available materials on fundamental and

applied researches and utilises their results in finding out their correct application under field conditions, after making such modifications as may be warranted by the local situation. Research is based in such a context more as a tool for action than as an instrument of science- building. Since action research is applied to extension methodology as well as the execution of projects in the fields through trials, the basic social and economic structure of society has to be studied prior to action. Action research has to apply research findings in an ongoing human situation. It must be said here that active follow up measures, by the social scientist or the agency concerned are necessary, though one cannot say if the practical proposals will be translated in to action at all.

Action research, thus involves the active involvement of the researcher, the sponsoring organisation and the actual client. This has been clearly indicated in the above reviews. Another advantage of this research is the scope for changing its approach based on the previous experience they had in this line. Action research results are more centered on the location - specific problems and their solutions. In the present study also an effort is being made to make use of the results of action research for the development of a particular location only, since the results may not be applicable under a different agro-socio-economic situation.

2.5 Impact of group management and action research

In order to frame the study and to understand the impact of group management approach, the literature on areas of impact made by earlier group management approaches and action research variables were reviewed. As the studies on the above items were scanty, variables related with adoption of technologies were also reviewed for selection of variables and the same are presented as follows.

2.5.1. Socio-psychological variables

2.5.1.1. Age

Age is directly proportional to the farmer's exposure and experience in farming and thus help them in taking realistic decisions and for efficient execution.

<u>Author and Year</u>	<u>Nature of relationship</u>
Geethakutty (1982)	- Positive
	-
Raju (1984)	- Negative
Godhandapani (1985)	- "
Wilson and Chaturvedi (1985)	- "
Lalitha (1986)	- No relationship
Kumar (1986)	- No relationship
Kumari (1989)	- "
Ramanna and Chennagowda (1990)	- Negative

Age was considered as an important variable for

inclusion in this study since the same was found to have direct relationship with adoption of farm innovations.

2.5.1.2. Education

Formal education develops mental power and character of individuals. In the present day world of dynamic information, acquiring and processing it for application may demand formal educational background of farmers.

<u>Author and Year</u>	<u>Nature of relationship</u>
Seethalekshmi (1982)	- Positive relationship
Sreekumar (1985)	- " "
Reddy (1987)	- " "
Pandurangiah (1987)	- " "
Reddy and Reddy(1988)	- " "
Vijaya Chandran(1990)	- " "
Thimmappa (1981)	- No relationship
Sainath (1982)	- " "
- (1982)	- " "
Lalitha (1986)	- " "

From the above reviews, it was clear that in majority of the cases education had positive relationship. In a state like kerala, the influence of educaion could be significant due to the high literacy level of the state. so it was decided to include education as a variable to understand the nature of the group under study.

2.6.1.3. Family size

It is the number of dependent members an individual has. Family size not only necessitates augmenting income but also provide manpower for farm operations.

Sivapurkar and Patil (1968) while studying the impression about co-operative farming concluded that the size of the family did not show any association with the attitudes towards co-operative farming.

Tyagi and Sohal (1984) found that family size did not have any relationship with the adoption of dairy practices. But the findings of Haque (1985) further showed that family size had a significant contribution to adoption of fishery technology and farmer's productivity.

As reviewed above, the relevancy of family size on this study was much realised. Hence, this variable was included with the objective of developing group approach.

2.6.1.4. Social participation

It refers to the nature of involvement of farmers in formal social organisation which may help farmers to have contact with fellow farmers and others connected with farming.

<u>Author and Year</u>	<u>Nature of relationship</u>
Thimmappa (1981)	- Positive relationship
Sainath (1982)	- " "
Pandurangiah (1987)	- " "
Kittur (1976)	- " "
Pamadi (1980)	- Negative Relationship
Raju (1984)	- " "
Kumari (1989)	- " "

Social participation was reviewed by many authors with positive and negative relationships. Therefore, an attempt was made in this study also to test its relationship in the present context.

2.6.1.5. Use of Information sources

Information sources referred to the sources the farmer depends on for collecting information regarding the improved methods of cultivation. This may include sources like Radio, newspaper, farm literature and other sources.

Nand and Jain (1967) concluded that neighbours were significantly better sources of information for the adoption of farm practices.

Ramirez (1986) concluded that, group media acted as useful sources of information.

Thus the information sources helped the farmers to a certain extent in deciding the practices to be adopted in farm activities. Hence use of information sources was also

included for testing its validity in this study.

2.5.1.6. Mass media participation

The current mass media boom has made possible for the farmers to have both accessibility to various media as well as timely information. Now a days agriculture and allied aspects do enjoy considerable coverage in mass media which may ultimately influence the adoption behaviour of farmers.

<u>Author and Year</u>	<u>Nature of relationship</u>
Godhandapani (1985)	- Positive relationship
Wilso and Chaturvedi (1985)	- " "
Suresh (1987)	- " "
Nanjayan (1985)	- " "
Lalitha (1986)	- " "

Since majority of the recent studies presented above have pointed out positive and significant correlation of mass media participation with adoption, this variable needs inclusion in this study also.

2.6.1.7. Knowledge

English and English (1961) defined knowledge as a body of understood information possessed by an individual or by a culture. Knowledge is one of the important components of behaviour and hence it would play a vital role in performing the job. A farmer equipped with better information on group management principles may contribute to his efficiency than others.

Amutham et al (1981) reported that due to the impact of community nutrition efforts there was great improvement in the nutritional knowledge and dietary practices of the home makers.

<u>Author and Year</u>	<u>Nature of relationship</u>
Sethy <u>et al</u>	(1984) - Positive direct effect
Haque	(1985) - Positive contribution
Singh	(1989) - Positive relationship

From the above reviews, it could be deduced that knowledge is an important variable in determining the behaviour of farmers. Hence this variable was also included in the study.

2.6.1.8. Cosmopoliteness

Cosmopoliteness here means the tendency of visiting the town, organisations and the habit of mingling with the other members. This tendency is also of importance, since it has impact on the farmer for developing his approach towards any

agricultural innovations.

Kamarudeen (1981) indicated non significant association of cosmopolitaness with knowledge of farmers about the demonstrated cultivation practices of paddy.

Since earlier studies show varying results, it was felt necessary to put this phenomenon to further test in this study also.

2.6.1.9. Extension orientation

Multivarious extension programmes are organised by development agencies and input agencies for information dissemination as well as product promotion. Farmers stand to gain a lot of information by participating in such activities which would help them in implementing profitable technologies in their farm.

<u>Author and Year</u>	<u>Nature of relationship</u>
Natraju & Chenna- (1986) gowda	- Positive relationship
Pandurangiah (1987)	- " "
Suresh (1987)	- " "
Baadgoankar (1983)	- No relationship
Reddy and Reddy (1988)	- " "

Based on the above studies, it was decided to test the relationship between extension orientation and group management in rice cultivation.

2.5.1.10 Management orientation

Management orientation is the orientation the farmer had with regard to effective management of the different farm operations.

Kamarudeen (1981) found that management orientation had positive and significant correlation with the level of knowledge of the farmer.

Eventhough there were no closely related studies were there, management orientation was considered for the study. Since it is expected to have more relationship with the group management approaches in rice cultivation.

2.6.1.11 Attitude towards group management

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

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

Ghosal (1982) while mentioning the changing face of an Orissa village stated that the farmers in each village become an interested group and developed a positive attitude towards group approach, in their cultivation.

Mohanan (1989) revealed that in the ela programme (Intensive paddy cultivation in contiguous area) the farmers had expressed positive attitude towards cultivation of Rice in large groups.

Job (1990) reported that group management in vegetable

cultivation at Palappur village developed a self confidence among vegetable farmers and thus a positive attitude was developed in them.

B. Farm Enterprises

<u>Author</u>	<u>&</u>	<u>Year</u>	<u>Nature of relationship</u>
Jha		(1989)	Positive relationship
Singh		(1989)	" "

Based on the above review, the significance of this variable was felt important and hence the variable attitude was included in this study also.

2.5.1.12 Group Cohesiveness

Back (1951) concluded that in a highly cohesive group, homogeneity is sought either with through the process of mutual persuasion and influence.

Taylor (1958) concluded that group cohesion or solidarity increases with each succeeding objective or goal the group reaches. The greater the solidarity of a group, the more capable it is to withstand outside pressure and to triumph over incipient and internal factions.

Zander and Cartwright (1967) opined that a cohesive group might be characterised as one in which all the members work together for a common goal.

Jackson (1960) demonstrated that a person's attraction to his work group is directly related to the degree that others consider him valuable to that group.

George (1969) reported that group management inculcated a sense of co-operation among the farmers of Andoorkonamela where FACT conducted a demonstration on joint cultivation of rice.

Hare (1978), in an intensive study of group cohesiveness, in industrial work groups, indicated that members of high cohesive groups exhibited less anxiety than members of low cohesive work groups.

The above reviews clearly indicates the importance of cohesiveness in group situation though studies directly relating to group cohesion in agricultural situation were not noticed. Since group cohesiveness, one of the ultimatums aimed by group management, the impact on this variable created by Group management approach was felt essential to be ascertained.

2.6.1.13 Adoption of agricultural innovations:

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

Nehru, et al(1988) studied the group management in vegetable cultivation under lab-to-land programme of Kerala Agricultural University, and revealed that there was an appreciable increase in the farmers adopting improved varieties of vegetable crops.

Desai (1989) pointed out that group management in farming had invoked group action in agricultural operations most efficiently and profitably.

Duad (1989) concluded based on two case studies in paddy groupfarm in Transperak and sugercane farm in North Peninsula Malyasia that the farmers adopted many of the scientific practices through group approach.

The above reviews revealed that group approach has

played vital role in the adoption of recommended practices.

2.6.2. Economic Variables.

2.6.2.1. Income

Farmers are interested ultimately in increasing income and group-management could act as a means to attain this.

Velumani and Jyothimani (1978) conducted action research projects on income generation for the members of Mahila Mandal and proved that the grass root level organisation could profitably be used to train woman in useful vocations to augment family income and savings.

Rao (1989) said that there are many resources at the farm level that can be used more efficiently on group basis. Technologies which are very costly and uneconomic for an individual farmer can be used more economically at the group level.

Nair (1990) while explaining the impact of group management in coconut cultivation, concluded that community irrigation, mechanised ploughing, manuring and plant protection on a collective basis helped the farmers to save more money.

Raghavan (1990) stated that from a single crop lasting three months the gains to Kerala State economy was to the tune of 27 crores, which give courage to the farmers to go ahead with group farming.

Sreekumar (1990) concluded that due to group farming the farmers of Vizhinjam, Trivandrum District could increase their productivity and the economic benefit derived was also substantially higher.

Mane (1991) stated that in two villages of Saurashtra region of Gujarat, community effort on rat control was effectively used. As a result of these efforts nearly 20,000 rats were killed in each village which has reduced rat manace by about 75 per cent. This resulted more economic returns to the farmers.

2.6.2.2 Yield

Group management could play vital role in increasing yield as has been found in the following studies.

Schiller (1959) reported that the co-operative use of mechanical plough, joint plant protection measures and the like are made possible in Germany. As a result more yield was noted in West Germany.

Moczarski (1973) reported that in a successful project in Lesotho, by adopting mechanised farming and supplying fertilizer, seed and other inputs on a group basis, the yield of their cultivation was considerably increased.

Kerala State Planning Board (1977) evaluated the eIa programme (Intensive paddy Development programme) and

observed that the programme had not resulted in a large breakthrough in rice production or any significant reduction in cost.

Venkataramiah et al. (1989) reported that the corn yield was increased in Pubela Valley, Mexico due to group farming.

Hali (1990) reported that after the initial survey of group farming in paddy cultivation in Kerala that the cost of cultivation was found to be reduced by 5 to 7 per cent. Productivity increased from 2949 kg/hectare during Kharif 1988-89 to 3916 kg/hectare of paddy in Kharif in 1989-90, he indicated.

Vijayachandran (1990) revealed that based on Andoorkonam experience in group farming the paddy yield increased by 25 to 30 per cent. Considering these encouraging results, the variable "yield" was included to test its relationship with the group management approach in the present study.

2.5.2.3. Cost of cultivation

Under Kerala conditions, cost of cultivation of ~~Rice~~ had increased enormously due to the typical socio-agro-political situations. So any means to reduce the cost of production of ~~Rice~~ is definitely a boom to the ~~rice~~ farmers of Kerala.

Considering the importance of this variable, cost of production was included in this study as a major variable. Some of the related studies are reviewed as follows:-

George (1969) narrated based upon the group management effort undertaken at Andoorkonam Ela by FACT, that considerable reduction in the cost of raising the nursery was recorded.

Menon . . . (1984) reported from the Lab-to-land programme trial at Thruavoor that the cost of cultivation of paddy could be reduced considerably due to group approach.

Hali (1987) reported that Group farming had proved as the most profitable paddy cultivation method.

Raghavan (1987) reported that the only way to reduce the cost of production of paddy cultivation would be by pooling the resources together and to do cultivation on a group basis.

Nair (1990) reported that by adopting all the package of practices on a group basis, the farmers could save the cost of cultivation to the tune of Rs.1500 to Rs. 2000/- per hectare.

Pillai (1990) reported that because of group farming the cost of cultivation was reduced by about 7 per cent during 1988-89.

Vijayachandran (1990) revealed based on the Andoorakonam Group farming experience, that the cost of cultivation was reduced by 22 per cent.

From the above it was clearly evidenced that the reduction of cost of production is the only way out for safeguarding the rice growers of Kerala. Hence this variable was included under the experimental study of rice cultivation through group management with due consideration in all the treatment periods.

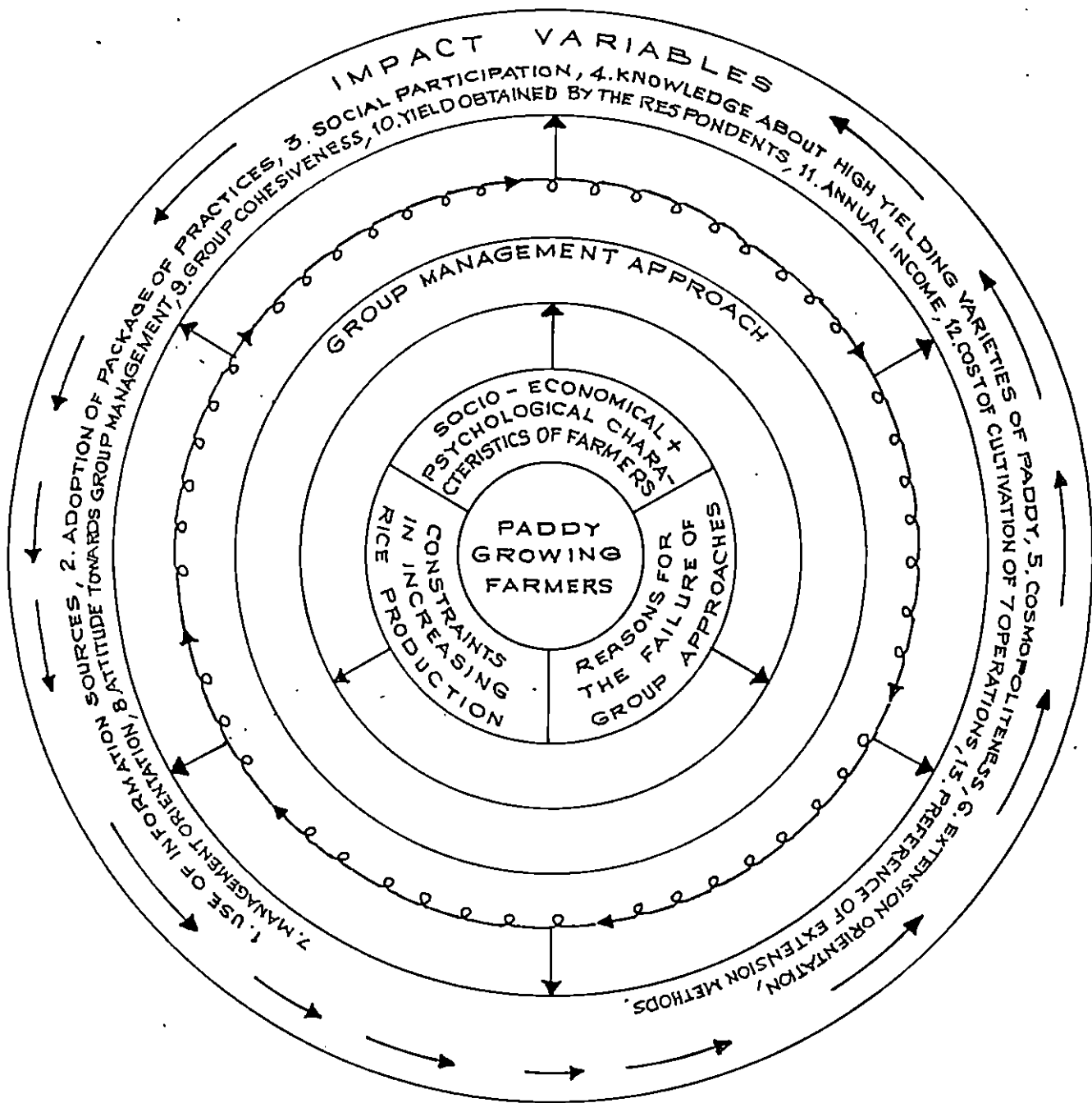
2.7. THEORETICAL MODEL OF THE STUDY

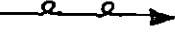
The Theoretical model was developed based on the objectives, theoretical orientation presented and the assumptions of the study and is diagrammatically presented in Fig. I.

The model consists of 3 concentric circles. The innermost circle partitioned into three segments depicts socio-psychological variables of the farmers, reasons for not following group approaches and constraints in increasing rice production.

The second circle depicts the Group management approach, the arrow connecting the first and second represents the group management approaches developed and is based upon the socio-psychological variables, reasons for not following group approaches and constraints in increasing

FIG 1: THEORETICAL MODEL OF THE STUDY.




 PLANNING, IMPLEMENTATION, EVALUATION AND RECONSIDERATION OF GROUP MANAGEMENT APPROACH.

rice production.

The third circle represents the impact variable considered for this study. The arrow connecting the second and third indicates the possible impact of group management on the selected variables.

METHODOLOGY

CHAPTER-3
METHODOLOGY

In accordance with the objectives of the study, the methodology followed is presented under the following heads.

- 3.1 Locale of the study
- 3.2 Selection of respondents
- 3.3 Design of research
- 3.4 Procedure employed in data collection
- 3.5 Statistical tools used in the study
- 3.6 Hypotheses set for the study

- 3.1 Locale of the study
 - 3.1.1 Selection of district

The study was conducted in Trivandrum District which was selected purposively in view of the following reasons.

- a) Trivandrum district had the lowest mean yield of High yielding varieties of paddy during the previous year of the study - (Table 1). The mean yield obtained with respect to different districts is as follows.

Table 1.

Estimated mean yield of High yielding
varieties of paddy during 1985-86

(Source: Directorate of Economics and
Statistics, Government of Kerala)

Sl.No.	District	Mean yield for all the three crops (Kg/ha)
1	Trivandrum	2474
2	Quilon	3254
3	Pathanamthitta	3222
4	Alleppey	3445
5	Kottayam	3229
6	Idukki	2961
7	Ernakulam	2778
8	Trichur	2969
9	Palghat	3055
10	Malappuram	2868
11	Kozhikode	2541
12	Wynad	3274
13	Cannanore	2754
14	Kasaragode	Not recorded during the year

b) There were previous attempts in line with group management in this district.

c) It had sufficiently larger area under paddy cultivation.

d) It had all the agro-socio-economic conditions for paddy

cultivation.

- e) It had all the technical network so that the possibilities of technical intervention were high.
- f) It had all the infrastructure for arranging the inputs in time.
- g) The student researcher was quite familiar with the area to conduct an action research study.

3.1.2. Selection of area

3.1.2.1. Selection of Village.

A list of villages in Trivandrum district was prepared in consultation with the revenue authorities. From within the prepared list, a list of villages having paddy as the major crop in three sequential paddy cultivation seasons, but low in productivity was prepared. Among the villages thus listed out, Thiruvállam village was selected purposefully considering the following reasons:-

- i) The village had contiguous paddy cultivation area
- ii) Existence of homogeneity in the caste and socio-economic status of the farmeres.
- iii) Infrastructure facilities were available in abundance.
- iv) The village represents the typical rice tract of Kerala and hence the results obtained in the study could be generalised to a certain extent.
- v) Proximity to the college of Agriculture, Vellayani so that the possibilities of timely technical

intervention were more.

3.1.2.2. Selection of programme operation area.

The basic unit of operation of the study area was Ela/padasekharam. Ela/padasekharam is a contiguous stretch of paddy field situated in a low lying area with all the facilities for cultivation.

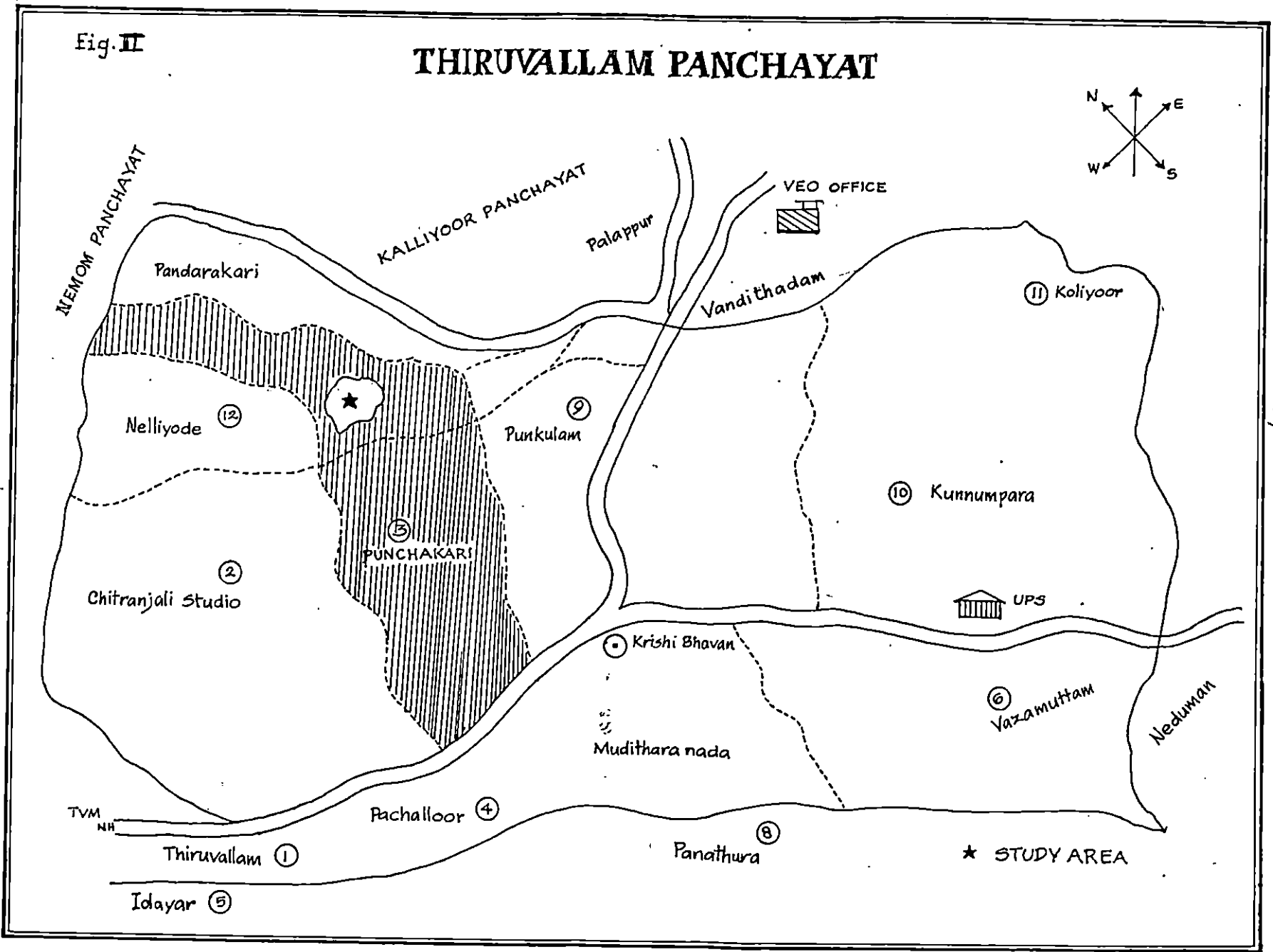
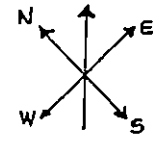
3.1.2.3. Brief description of the operational area.

The "punchakari ela" in Thiruvallam village is situated 12 kms from Trivandrum city with a population of 921 people and is 2.5 Km away from college of Agriculture, Vellayani. This ela is situated towards the left side of Vandithadam palappur road, and is surrounded by pandarakari ela on the left side and Vellayani lake on the right side. (Fig. II) Three crops of rice or two crops of rice and one crop of vegetable are cultivated in cropping sequence in an year. The main source of irrigation is Vellayani lake which is having abundant water throughout the year. The excess water is pumped in the nearby elas every year before rice cultivation. On the banks of these elas, vegetable and banana are cultivated throughout the year due to the assured irrigation facilities available.

The soil of this ela is clay loam to sandy loam. Majority of the inhabitants of this area are farmers and farm labourers. Only very few of them are engaged in other

Fig. II

THIRUVALLAM PANCHAYAT



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services. The area has more of a homogeneous group of people representing the Hindu Nadar Community with very few exceptions. The people are very hard working and therefore majority of the farming operations are being done by themselves.

The ela lies within the administrative jurisdiction of two krishibhavans (panchayat level agricultural development unit) namely Thiruvallam and Kalliyoor. Two service Co-operative Societies namely Kalliyoor Service Co-operative Society and Koliyoor Service Co-operative Bank are situated within a radius of 6 Kms. Schools, Primary Health Centre, Veterinary Hospital, village level Extension Office, Panchayat Office and the like are situated within the radius of 5-6 Kms. The Agricultural College, Vellayani is situated 2.5 Kms from the study area.

With regard to the socio-economic level of the farmers majority of them are far below the poverty line. Moreover, fragmentation of holdings in course of time made their farm enterprise uneconomic. As a result, many of the farmers are doing cultivation in leased in lands. This also resulted in the diversion of a giant portion of their income to compensate the lease amount. Another important reason for the backwardness of the ela is the lack of organised leadership. Due to this, organised farming operations could not be chalked out and the farmers were exploited by

middlemen at the time of marketing of agricultural produce.

3.2 Selection of respondents

While selecting the group of farmers, the following criteria were kept in mind.

- i) Respondents should be practising rice farmers.
- ii) They should have cultivated high yielding rice for atleast three rice seasons prior to the study.
- iii) They should be small/marginal farmers representing the typical rice farmer of that area.
- iv) They should be willing and co-operating farmers.
- v) Selected farmers should be willing for technological intervention.
- vi) The rice fields of the farmers selected should be contiguous.

With the above mentioned six criteria as guidelines, the Researcher with the active Co-operation of the local Agricultural Officers and their supporting staff arranged preliminary meetings for five groups of farmers at selected five points throughout the stretch of Puchakari ela, from 8-11-1987 onwards as detailed below for five groups of farmers.

- i) First farmers meeting at Madhupalampumphouse premises on 8-11-1987.
- ii) Second meeting at N.S.S. Karayogam premises on 10-11-1987.

- iii) Third meeting at threshing yard in front of Punchakari ela on 13-11-1987.
- iv) Fourth meeting at Palappur library on 17-11-1987.
- v) Fifth meeting at Pandarakari ela premises on 18-11-1987. In the above five meetings, the Resercher and the Agricultural Officers explained the details of rice cultivation under group management with its salient features. A leaflet entitled - 'Sangha Krishi - Adhayakaram' (Group Farming Profitable) (Appendix VII.) in Malayalam language was circulated among the farmers to have an orientation about "group management in rice production" and farmers were requested to participate in the programme.

Eventhough all the five groups agreed in principle to co-operate with the new concept of group management, four groups gradually withdrew their willingness to co-operate with this research attempt since they were not prepared to risk such a new venture - except the group at Punchakari. This willingness was derived out of repeated contacts with the farmers continuously for a period of over two months. Though fifty four farmers presented their written willingness form in the beginning, only thirty four farmers of Punchakari ela in a contiguous stretch of ten acres finally decided to participate in the group management approach on rice cultivation initiated by the Researcher.

3.3 Design of Research

Design of research is the plan, structure and strategy of investigation conceived so as to obtain answers to research questions and to control variance. The plan is the overall scheme of the programme of research and structure is the outline of the scheme of operation of the variables (Kerlinger, 1973)

3.3.1. Benchmark survey

Benchmark survey is very much essential to develop meaningful programmes and to measure the impact derived out of the implementation of the programme. Further, it helps to develop a confidence on the part of the Researcher for future programme of activities based on the initial data collected.

3.3.1.1. Reasons for success or failure of earlier group approaches

To formulate effective group management approach, a knowledge on the reasons for the failure of earlier group approaches became essential. With this view the reasons for the failure of earlier group attempts were studied. The procedure followed in analysing the reasons is described below.

1. Collection of reasons

Reasons for the success/failure of earlier group approaches were selected based upon the review of literature conceived and discussion with the extension workers and farmers of the study ela. Totally 31 reasons for this study were selected.

2. Collection of responses from the farmers

The reasons were presented to the farmers and responses were obtained on a three point continuum namely most important, somewhat important, and least important and scores were allotted as 3, 2 and 1, respectively.

The responses from the selected 34 farmers of Panchakari ela were collected. The important reasons were arrived at based on two criteria namely/reasons mean score and coefficient of variation. Mean score was found by summing up the weightage obtained for a reason and dividing by the number of farmers responded. Likewise, coefficient of variance was also arrived at by the standard formula of dividing standard deviation of the variable by its mean score and multiplying by 100. Then the average mean score and average coefficient of variance were worked out by dividing with the number of reasons. Those reasons having mean score more than average mean score and coefficient of variation less than the average of coefficient of variation were considered as important reasons for the study. The

farmer one indicated the reasons of higher degree of importance, the later one revealed higher degree of agreement of the farmers on the importance of a reason. The findings are presented in Chapter 4.

3.3.1.2. Constraints in increasing rice production

Knowledge of the constraints in increasing rice production was also felt essential for development of group management approach. With this objective in mind, the constraints in increasing rice production were studied as follows.

1. Collection of constraints

Constraints in increasing rice production were selected based upon the review of past works and in consultation with the extension workers and farmers of the area. Totally 71 constraints were identified for this study.

2. Collection of responses from the farmers

The identified constraints were presented in the schedule prepared for this purpose on a three-point continuum, as in the previous case ranging through most important, somewhat important and least important with scores 3, 2 and 1 respectively. The responses from the selected 34 farmers of the study area were collected. The important constraints based on the criteria namely constraint's mean score and coefficient of variation were

found out as described earlier. The findings in this regard are presented in the next Chapter.

3.3.1.3. Socio - psychological and economic variables

Based on the review of literature and discussion with extension workers, the following variables which would form the basis for the formulation of group management approach as well as assessing the impact of group management, were selected.

Socio-psychological variables

1. Age
2. Education
3. Family size
4. Use of information sources
5. Social participation
6. Cosmopolitaness
7. Extension orientation
8. Management orientation
9. Size of farm holding
10. Attitude towards group management
11. Knowledge about high yielding variety of rice
12. Adoption of package of practices
13. Group-cohesiveness
14. Caste
15. Occupation

Economic variables

1. Yield
2. Income
3. Cost of cultivation of different practices

Out of the above, the following variables barring age, caste, occupation, education, family size and size of farm holding were considered as impact variables as these variables are manipulable and any favourable change in these variables, it was assumed will be helpful, in the betterment of rice cultivation and improvement of the farm families. The above six variables listed were considered in this study so as to design suitable group management approach.

3.3.1.3.1 Operationalisation and measurement procedure of variables

1. Socio-psychological variables

a) Age

Age was measured as the number of years the respondent has completed since his birth at the time of investigation.

The selected farmers for the study were categorised as:

Young	-	Below 16 Years
Middle	-	16-50 Years
Old	-	Above 50 Years

b) Education

On the basis of the level of education attained by the

farmers, they were categorised into illiterate, can read only, can read and write, primary education, high school and above.

c) Caste

Caste here represents the community to which the farmer belonged to. Farmers were categorised into the caste to which they belonged to, as Hindu Nadar and Christian Nadar.

d) Occupation

Occupation refers to the type of work the farmer was doing for his livelihood and they were categorised into:

Labourers

Caste/Occupation

Business

Cultivation

Service

i) Labourers

This category of farmers are involved either in agricultural operations or in other connected activities for their livelihood.

ii) Caste occupation

This category of farmers are involved in occupations like house keeping and activities related to temple and such institutions for their livelihood.

iii) Business

They are directly involved in some kinds of business activities for their livelihood.

iv) Cultivation

They are only involved with the cultivation activities of their own.

v) Service

They are engaged in Government or private employment for their livelihood.

e) Family Size

Family size refers to the number of dependents in a family. In this case, the farmer and his dependents were considered for categorisation as upto 5 members, and more than 5 members.

f) Use of information sources

It refers to the extent to which various mass media are used by the farmers. In this study the following information sources were considered.

- a) Radio
- b) Newspaper
- c) Farm magazines
- d) Agricultural publication
- e) Other sources

Use of each information source by the farmer was given one score and by summing up the number of information sources used by the farmer, the total score for that farmer was arrived at.

The grouping of farmers into low, medium and high categories of use of information sources was done as follows. The range of score was found out by taking minimum and maximum score obtained by the farmers and was divided by three. The number obtained was added up with the minimum score and the farmers having these scores were considered as low. Similarly the maximum score was subtracted with the number, which formed the high category. The farmers who obtained scores between these two categories were classified under medium.

g) Social participation

It refers to the extent of involvement of the farmer - respondent in formal organisations as member or office bearer. The scores allotted were as follows.

<u>Item</u>	<u>Score</u>
1. Not a member in any organisation	- 0
2. Member in one organisation	- 1
3. Member in more than one organisation	- 2
4. Office bearer in one organisation	- 3
5. Office bearer in more than one organisation	- 4

The final score of the individual farmer was obtained by summing up the scores. The categorisation into low, medium and high was done as in the previous case of information source.

h) Cosmopolitaness

It refers to the frequency of visit to the town along with the purpose of visit and membership in organisation outside the village. The scoring procedure followed is given below.

a) Frequency of visit to the nearest town

Two or more times a week	-	4
Once a week	-	3
Once a fortnight	-	2
Once a month	-	1
Never	-	0

b) Purpose of Visit

Agricultural	-	3
Personal	-	2
Entertainment	-	1
Others	-	0

c) Membership in Organisation

Member	-	1
Non member	-	0

The total score obtained by an individual was taken as his cosmopolitaness score. Farmers were categorised into three categories of low, medium, and high as described in the previous case.

i) Extension orientation

It refers to the degree of participation in various extension activities conducted by development agencies in the farmer respondent's locality. The following activities were included to evaluate the extension participation of the respondents after consultation with the agricultural extension agencies in the area.

- i. Study tours/field visits
- ii. Group meeting
- iii. Farmer's days
- iv. Demonstrations

The respondent's frequency of participation in the above was used to arrive at, his extension orientation score. The scores allotted are given below:

<u>Frequency</u>	<u>Scores</u>
Whenever conducted	- 2
Not attending all the activities whenever conducted	- 1
Never	- 0

Categorisation of farmers as per their extension orientation was done as in the previous case.

j. Management orientation

Management orientation refers to the degree to which a farmer is oriented towards scientific farm management comprising planning, production, and marketing functions.

For measuring the farmer's management orientation, the scale developed by Samantha (1977) was used. It consisted of 18 statements, six each for planning, production and marketing orientation. In each group, positive and negative statements were mixed. In the case of positive statement, a score of one was given for agreement and zero for disagreement. For negative statement, the scoring pattern was reversed. The sum of scores obtained by a respondent was taken as his score for management orientation. Farmers were categorised into low, medium and high management orientation as described earlier.

k. Knowledge on cultivation of high yielding varieties of rice

It refers to the extent of information the farmers had of high yielding varieties of rice and the same was measured by a standard knowledge test.

Cronbach (1970) defined knowledge test as one in which procedures, apparatus and scoring have been fixed so that precisely the same test can be given at different times and places.

A standardised knowledge test as defined by Niles (1956) is the one that has been carefully constructed by experts in the light of acceptable objectives or purposes and procedures for administering, scoring and interpreting score and are specified in detail so that the results should

be comparable and norms and averages for different age and status groups have been predetermined.

Singh and Singh (1975) developed a knowledge test based on the response of farmers on various aspects of wheat cultivation. The total score of each individual was calculated by the formula.

$$\frac{X1}{N} \times 100 \text{ Where}$$

X1 = No. of correct answers
N = Total number of questions

In this study, the test used by Kamarudeen (1981) based on the method developed by Nair (1969) was made use of with slight modifications to measure the farmers' knowledge on the cultivation practices. Only five practices were selected and questions were changed to suit the location under study. (Appendix 1)

Method of scoring

Eighteen items were included in the knowledge test. Each respondent was given one score for correct answer and zero score for incorrect answer. The total knowledge score for each respondent was calculated by summing up the scores given for each item. Thus the maximum knowledge score that could be obtained by a respondent was 18 and the minimum that could be obtained was zero.

Farmers were classified into three categories of knowledge level as low, medium and high as explained in the case of use of information sources.

1. Attitude towards group management

It refers to the degree of positive or negative feeling of the farmer towards group management. Attitude was measured by an attitude scale developed for this purpose. An attitude scale is one which assesses the degree of affect that individuals may associate with psychological object.

Kamarudeen (1981) measured the attitude of farmers towards the demonstrated cultivation practices of paddy by using a scale developed for the purpose following Likert's rating method as described by Edwards (1957). The same method was used in the development of the attitude scale in this study also.

The final scale consisted of 20 statements. The responses were collected on a five point continuum as follows:

SA	-	Strongly agree
A	-	Agree
UD	-	Undecided
DA	-	Disagree
SDA	-	Strongly disagree

The responses were assigned numerical weights of five

for strongly agree, four for agree, three for undecided, two for disagree and one for strongly disagree in the case of positive statements. The scoring procedure was reversed for negative statements.

The total attitude score for each respondent was calculated by adding up the scores for each statement. After computing the attitude scores, the 't' value for each statement was worked out. The statements and the 't' values arrived at are presented in the appendix. III.

m. Adoption of package of practices

It refers to the recommended practices followed in the cultivation of rice.

Many research workers have developed various methods to measure the adoption behaviour.

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

Marsh and Coleman (1955) used 'practice-adoption' score computed as the percentage of applicable practices adopted.

In this study the package of practices recommended by the Kerala Agricultural University for high yielding varieties of paddy were listed out and farmers were given a

score of one for each practice followed by them. For non adoption, no score was given. The minimum score obtained by a farmer in the study was 2 and the maximum score obtained was '9'. The farmers were grouped into three as follows:

Low	-	0 to 3 scores
Medium	-	4 to 6 scores
High	-	7 to 9 scores

From the scores thus worked out for each farmer based on the number of practices adopted, an adoption score was derived. Based on the adoption score obtained by a farmer, the relationship of adoption of practices for different crop seasons was worked out by using Friedman's X^2 test.

n. Group Cohesiveness

According to Stephen (1987), 'cohesiveness' is the variation in the degree to which members are attracted to their group. It is the total field of forces which act on members to remain in a group.

In this study, it refers to the degree of relationship a farmer has with other farmers on various dimensions.

Based on review of literature and discussion with social scientists, 22 items of group cohesiveness were selected. They are:

1. Interaction

2. Group attraction.
3. Interdependence.
4. Feeling of oneness.
5. Uniform opinion
6. Interpersonal communication.
7. Solidarity
8. Mutual agreement
9. Harmonious relationship.
10. Intimacy
11. Mutual trust
12. Adjustability
13. Friendliness.
14. Loyalty.
15. Group morale.
16. Shared responsibility.
17. Group decision.
18. Group Co-operation
19. Homogeneity
20. Team spirit
21. Participation in group activities
22. Group goal achievement.

Operationalisation of the items under group cohesiveness
included for the study

1. Interaction: It refers to the extent of interaction the respondent had with the other group members wherein he is also a member. Interaction liberally means the habit of exchanging the ideas with each other.
2. Group attraction: Group attraction is the amount of closeness the members are maintaining within themselves, during the group activities. It indicates the attraction, the members are exhibiting through out the maintenance of the group.
3. Interdependence: It indicates, how much the members of the group are dependent of each other. Dependence is a very important character of cohesiveness.
4. Feeling of oneness : This is the tendency of union of group members at times of group action. When all the members are united together, naturally the group action will be much easier.
5. Uniform opinion: This indicates the unanimous opinion exhibited by the group members during the planning, execution and evaluation stages of group activity. When there is uniform opinion in a group, the group activity will be much easier.

6. Interpersonal Communication: This is the tendency of communicating each other during the group process. Interpersonal communication helps the members to express their ideas in the group and to know the ideas of other members also.
7. Solidarity: Solidarity means, the solid nature of the group members for the proper functioning of the group. If there is solidarity in a group, it is very difficult for others to criticize about the group.
8. Mutual agreement: This means that there exists a mutual understanding between the group members. In such a situation there will not be any difference of opinion between the group members.
9. Harmonious relationship: This is the very calm and smooth relationship maintained by the members in a group atmosphere when there is harmonious relationship in a group, it is always advantageous to the group.
10. Intimacy: Intimacy means, the amount of intimate or true relationship being maintained by the group members in a group situation. If there is intimacy in a group, there is no question of any split in the group.
11. Mutual trust: This is another desirable character required for effective group action. This tendency indicates the amount of trust exhibited between the members in a group.
12. Adjustability: Adjustability means the give and

take policy shown by the members in a group set up. Due to adjustability in a group, there is less scope for competition between members.

13. Friendliness: This is the friendly nature exhibited by the members in a group set up. Friendliness leads to stability in a group.

14. Loyalty: This means the loyal or dedicated tendency exhibited by the members in a group process. If there is loyalty in a group, it is very difficult to discourage a group.

15. Group Morale: In this condition, each and every member of the group will be very well aware of the morale for which the group is existed. The members will see that the group morale will be protected at any cost.

16. Shared responsibility: In this condition, the members will voluntarily come out to share the responsibility entrusted to the group. Due to this nature, no member will try to shirk their responsibility.

17. Group decision: During the group process, each and every member will consider the decisions, once taken as the decision of the group. Some how they will see that these group decisions will be put into practice.

18. Group co-operation: If there is no-cooperation between the members, it is very difficult to achieve the group goals. So all members will cooperate for the ultimate motto of the

group.

19. Homogeneity: Homogeneity means uniformity in the group membership and their achievements. For the success of the group, there must be homogeneity and not heterogeneity

20. Team spirit: This is the amount of feeling (spirit) one member is having towards group. So we have to encourage team spirit than individual approach.

21. Participation in group activities: It indicate the extend of participation, a member is exhibiting towards group activities. If there is participation in group activities, it is easier to achieve the group goals.

22. Group goal achievement: It is the extent of member's involvement in achieving the group goal. If there is full involvement, group goals will be achieved without any difficulties.

The above operationalisations were explained to the respondents one by one very clearly and doubts were clarified as and when required. After the member's full understanding about each item only, they were asked about their opinions of placing them in different steps of the ladder. Likewise for each item the members were asked about their placement in the appropriate steps of the ladder.

Each of the dimensions was provided with a ladder having 11 steps from low to high with scores ranging from 1-10. Farmers were asked to give their response in each of the dimensions about their position in the ladder, Based on-

their perception as to which step they put themselves, in a particular dimension. The total group cohesiveness score of the farmers was calculated by summing up the score obtained in all the 22 dimensions. The farmers were grouped into three as follows:

Low	-	0	-	70	scores
Medium	-	71	-	140	scores
High	-	141	-	210	scores

II Economic Variables

a) Yield

Yield refers to the production of rice per hectare obtained by the farmer - respondent.

It was expressed in Kilogram. Based on the yield, the farmers were grouped into low, medium and high taking into consideration, the range of the yield as described earlier.

b) Income:

In this study the income refers to the income derived from rice cultivation by the respondent in the experimental area. The farmers were grouped into low, medium and high income groups based on their income from rice cultivation alone, under study.

c) Cost of cultivation

Here the cost of cultivation refers to the expenditure incurred by the farmer for cultivating one hectare of high yielding variety of rice in the research study. Cost was found out for the practices mentioned below:

1. Cost of cultivation for mainfield preparation
2. Cost of cultivation for seeds and sowing
3. Cost of cultivation for Transplanting
4. Cost of cultivation for manuring
5. Cost of cultivation for plant protection
6. Cost of cultivation for weeding
7. Cost of cultivation for Harvesting

In all the seven cases the categorisation of expenditure was derived separately for each operation as low expenditure, medium expenditure and high expenditure as in the previous cases.

The results on the manipulable and non-manipulable variables included in the benchmark survey are presented in the findings chapter.

It may be noted that while comparing the distribution of farmers in the manipulable variables under low, medium and high over the five treatment periods, the range was extended taking into consideration minimum and maximum of all the five periods. This was done to facilitate effective and meaningful comparison over different periods.

3.3.1.3.2. Action programme on group management

I. Design of the action programme of group management

The design of the action programme was based on action research. Since action research is heuristic in nature, it provided more opportunity to change the mode of operation to further improve the programme by overcoming the pitfalls if any identified in the previous experiences.

Bennet (1985) added that in "action research", action is both an outcome of the research and a part of the research process. It aims to tackle problems which have relevance to theory and to report the findings to sponsors, scientists and practising professionals via reports and professional journals.

Rao et al (1987) defined "action research" as the process of systematically collecting research data about an ongoing system relative to some objective, goal or need of that system, feeding these data back into the system, taking actions by altering selected variables within the system based both on the data and on the hypothesis and evaluating the results of actions by collecting more data. In line with the suggestions of Rao et al (1987), the action programme was implemented adopting action research design.



II. Execution of action programme

An action programme taking into consideration, the results of the socio-psycho-economical variables was developed for implementing in the study area along with the co-operation of the group of farmers involved in this programme. Here the importance of group and their relevance were highlighted right from planning of the experiment till the end of the research programme.

Group management is a strategy for groups to achieve fullest utilisation of all the resources, for maximum output. Hence, as envisaged in the concept of group management, active involvement of all the people concerned should be collectively utilised at each and every stage of the programme execution.

That is why in this research study, this important human element was considered as one of the management inputs and this was fully utilised at all the stages, for effective turn out of the research programme.

Before the implementation of the research programme, weekly group meetings were repeatedly arranged with the active collaboration of the local organisations, Kerala Agricultural University and Department of Agriculture to re-emphasise the necessity of the involvement of the selected farmers in groups. Good rapport was built with the farmers

by considering all the socio-psychological aspects of the farmers concerned. They were exposed to the case - studies conducted within the State and outside, so as to create an awareness and confidence to go ahead with the programme. At every stage care was taken to make the farmers feel that it was their programme and their full participation was sine qua non for the successful completion of the programme.

III. Formation of Panchakari Karshaka Samithi

For the effective implementation of the action programme and to overcome the identified constraints in this regard a Samithi by name "Panchakari Karshaka Samithi" was formed and this started functioning in a room generously arranged by the members of the Karshaka Samithi from 20.4.1988 onwards. All the 34 farmers had automatically become members of the above Samithi. The samithi selected a convenor and 10 executive committee members for the effective implementation of the programme. The duties of the convenor and committee members were clearly defined. Accordingly, the following duties were assigned to the convenor and members of the executive committee. It was made clear in all the meetings that the programme will be planned and implemented by the group itself, under the supervision of the researcher. Ultimately the group action was the overall target expected out of these efforts in the group atmosphere, it was reminded.

Duties of the Convenor

- a) To identify the problems pertaining to group in rice cultivation and report in the weekly meeting, for arriving at solutions.
- b) Arranging weekly meetings on every Sunday evening.
- c) Informing the farmers about the meetings, steps to be taken in the field, and requirement of inputs etc.
- d) To act as a liaison between the farmers and the research worker.
- e) To arrange input supply, subsidies and other benefits to the farmers.
- f) To arrange collective cultivation operations from sowing to harvesting.
- g) To effect payments for the input supply and other operations, after collecting the amounts due from members of the Samithi.

Duties of Committee Members

- a) To support the convenor in the day-to-day activities of the Samithi.
- b) To train unemployed youth for collective operations like land preparation with the tractor or tiller, spraying plant protection chemicals and effectively utilise their

service for the above operations on a most profitable manner.

- c) To help the convenor in raising the community nursery and in its maintenance.
- d) To help in regulating assured irrigation water at the appropriate time.
- e) To help the convenor in effecting payments for the input and for other collective operations in the field.

The above Karshaka Samithi has to function with the active involvement of the members throughout the experiment period. In effect, the Samithi was expected to undertake all the group activities as per the pre-determined programme under the direct supervision of the Researcher.

IV. Arranging the input in time

The Samithi sought the help of Kalliyoor and Thiruvallam Krishi Bhavans in arranging the supply of seeds, fertilizers, plant protection chemicals in time at subsidised rate through the local co-operative societies. The tiller available in the Research, Testing, Training Centre, Vellayani was utilised for the land preparation on group basis. So also sprayers attached to the above Krishi bhavans were spared for undertaking spraying operations whenever needed. The minor engineering sub division, Pallichal co-operated in dewatering the Kayal water in time

to avoid any damage to the standing crop for raising fresh crop.

V. Establishing linkage

The officials in charge of the various development departments namely the Department of Agriculture, Minor Irrigation Department, Service co-operative societies, and other related agencies were contacted through correspondence and also in person to elicit their help and co-operation in the execution of the programme. As a result of this rapport development, the facilities were made available throughout the period of the study.

VI. Establishing contact with local organisation

Local organisations like Panchakari Padasekhara Committee, Karshaka Thozhilali Union, Panchakari Sahodhara Samajam, Panchakari youth library etc., were contacted for their co-operation. A harmonious and cordial rapport was maintained with the members and office bearers of the above local organisations throughout the period of study. They were invited to attend the weekly meetings and their suggestions were taken into consideration.

VII. Experimental crop raising

The experimental crops were raised under group management situation as detailed below in an area of 10

acres belonging to 34 farmers.

- i. Ist crop - Virippu season from 1-6-1988 to 23-9-1988 (Variety - Jyothi)
- ii. IIand crop - punja season from 16-1-1989 to 14-5-1989 (Variety - Jyothi)
- iii. IIIrd crop - Virippu season from 1-6-1989 to 28-9-1989 (Variety - Bharathi)
- iv. Follow up crop - Punja season from 15-1-1990 to 9-5-1990 (Variety - Jyothi)

The data collected from time to time were recorded in the interview schedule prepared for this purpose.

VIII. Changes in Action programme

After the implementation of the Ist research crop (Treatment - 2) the Researcher could identify certain difficulties, and so the group members suggested modifications in the action programme. The Researcher discussed in detail with the group members about the difficulties in the weekly meetings and necessary changes were made unanimously under the supervision of the Researcher. The problems experienced during 1st crop season and suggested measures to overcome the above problems during the 2nd crop season were recorded. The following were the identified problems and the action taken to find solutions to the problems:

1st crop season2nd crop season

- a) During the first experimental crop, the tiller available in the Research, testing and training centre was arranged, the tiller developed mechanical troubles frequently. Its transportation from Vellayani to the ela and back was also difficult. As a result the cost of land preparation was slightly more than what was anticipated.
- b) Seed for 1st crop season was arranged from Ulloor state seed farm with lot of difficulty. The transportation cost was also high.
- c) During the 1st crop season the community nursery was raised in one compact area. As a result, the farmers found difficult to transport the seedlings to their fields. Moreover, the nursery plot was kept idle till all the seedlings were uprooted. so the planting in this compact plot was delayed.
- d) Fertilizer was stored in one area, (in the Karshaka Samithi room) and its distribution and transportation was difficult during 1st crop.
- e) During the first crop season plant protection subsidy was not granted to the farmers.
- f) For plant protection operation, two persons were engaged from outside in addition to the two
- To overcome the above difficulties a tiller available in the nearby ela was hired and used with the help of a trained youth in the ela itself. This procedure which brought down the cost of land preparation was followed for the remaining two crops also.
- This problems was overcome by arranging the seed from the nearby Kalliyoor Krishi Bhavan for the remaining crop seasons. Thereby the transportation cost was reduced considerably.
- To overcome this difficulty the community nursery was raised in three distributed plots, so that the transportation difficulty and delay in planting were avoided for the remaining crops.
- From second crop onwards, arrangements were made to distribute fertilizers in different places as per the farmers' choice in collaboration with Kalliyoor service co-operative society.
- From the second crop onwards subsidy was arranged with the help of Principal Agricultural Officer, Trivandrum.
- From the second crop onwards four willing farmers from the ela were entrusted this job.

- executive committee members, and this resulted more expenditure on spraying for the 1st crop season.
- This resulted in cost reduction for plant protection operation.
- g) During the first crop season weeding was done without supervision and this resulted in more expenditure.
- From second crop onwards weeding was done under the close supervision of the executive committee members. So the cost also reduced considerably in the later seasons.
- h) There was no proper planning on water distribution in the research area. Therefore, many plots did not get irrigation water in time.
- From second crop season onwards water distribution was regularised with the help of 2 committee members. Thereby all plots could receive timely irrigation water.
- i) During the harvesting of the first crop, scarcity of labourers was experienced and this resulted in wastage of rice seeds in some cases.
- From the second crop onwards, arrangements were made with the help of local Karshaka Thozhilali Union to have harvesting continuously without much loss.
- j) During the first crop season, farmers could do their cultural operations as per the convenience of their permanent labourers. This resulted in lack of uniform crop growth and increased pest attacks.
- Such farmers were contacted during the second crop, and a general understanding was arrived at to have uniform cultural operations. Due to this, pest attack could be minimised from IInd crop onwards.

Assessment of impact of group management approach.

The research design followed in this study is to assess the impact of group management in rice cultivation. For this purpose a single group before and after design was followed. According to Kerlinger (1973) the essential characteristics of this research design is that the group is compared with itself. A group is measured as a dependent variable before any experimental manipulation. This is usually called as pretest. After the exposure of the group, the changes in the variables are examined.

Following the criteria laid down for group before and after design by Kerlinger (1973), the group of selected farmers was measured initially on selected dependent variables (Manipulate variables).

In this study group management is considered as an extension input to bring about desirable changes in the group. More thrust is given to this management component of the group. The impact of group management on the following manipulable variables were studied over a period of three crop seasons namely T2, T3 and T4.

Manipulable variables considered for the impact study

1. Use of information sources.
2. Adoption of package of practices
3. Social participation

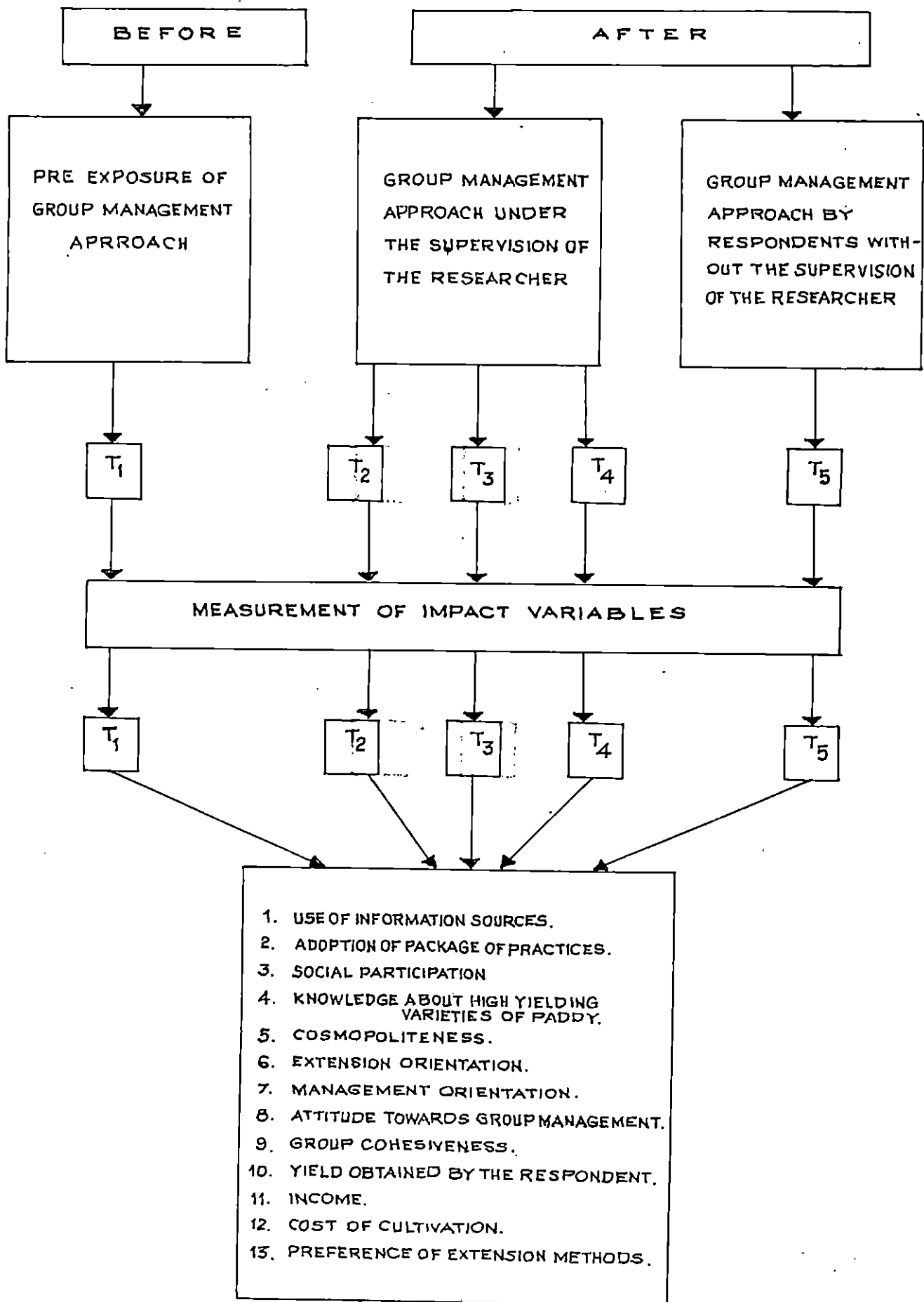
4. Knowledge about high yielding varieties of paddy.
5. Cosmopolitanness 27
6. Extension orientation.
7. Management orientation.
8. Attitude towards group management.
9. Group cohesiveness.
10. Yield obtained by the respondent
11. Income.
12. Cost of cultivation.
13. Preference of extension methods.

The group approach was operated for three rice crop seasons under the guidance of the Researcher. In the fourth season, the rice cultivation, including the planning was carried out by the farmers themselves, but following group approach without the guidance of the Researcher and measurement was made after this crop. For classification of the farmer respondents into various categories, the cumulative mean over the T1, T2, T3, T4 and T5 periods was used as a criterion. The corresponding changes that has taken place over the experiment periods as a result of group management approach on the manipulable variables mentioned were measured. For the purpose of studying the influence of group management on the manipulable variables, hypothesis were formulated. The research design adopted could be represented as follows: (Fig III)

The research design comprises of two main periods of study namely (i) Before group management approach (T1) and (ii) After the group management approach. After, the group management is again divided into (a) Group management approach under the supervision of the Researcher (T2, T3 and T4) and (b) Group management approach without the supervision of the researcher (T5).

The impact before and after the group management on the impact variables are also represented in the research design.

FIG. III RESEARCH DESIGN OF THE STUDY.



3.3.1.3.3. Preference of extension methods

In order to suggest suitable extension methods for various rice cultivation practices to be included in the group management approach, the following extension methods were experimented.

- i) Individual contact
- ii) Group discussion
- iii) Farmers' training camp
- iv) Field visit

These extension methods were experimented with reference to the following cultivation operations.

- i) Seeds and sowing
- ii) Land preparation
- iii) Transplanting
- iv) Manures and Manuring and
- v) Plant protection operations.

The preference of the farmers was measured by getting the responses of the farmers in terms of ranks 1 to 4 from most to least preferred extension methods for each of the cultivation practices included. Then the mean score was worked out by dividing the total score of the method by the number of farmers. The ranking was done for the extension methods with reference to each of the cultivation practices included during all the treatment periods as mentioned in the diagrammatic representation of the research designs.

3.4. Procedure employed in data collection

The data collection was done using a structured interview schedule prepared for the study (Appendix VI.) The interview schedule consisted of 3 parts:

Part 1a - Information on the non-manipulable variables.

Part 1b - Farmers' response on the manipulable variables (Impact variables)

Part 2 - Preference of extension methods

The data collection was done from time to time during the entire experimental period from 1-6-1988 to 9-5-1990.

3.5 Statistical tools used for the study

The data collected were tabulated and analysed with the help of suitable statistical tools. Described below are the statistical methods used apart from the one used as part of the scale development procedure. The statistical analysis were done with P.C - A.T - 386 computer available at the college of Agriculture Vellayani.

3.5.1. Simple percentage

After grouping the farmers into various categories as low, medium and high with respect to various variables considered for the study, simple percentage was worked out to find out the percentage distribution of farmers in these categories.

3.5.2. Mean

The mean was worked out for the scores of reasons for the failure of group approaches and constraints in increasing rice production and used for identifying important reasons/constraints.

3.5.3. Coefficient of variation

The coefficient of variation was worked out for the scores of reasons for failure of group approaches and constraints in rice production and was used for identifying important reasons/constraints.

3.5.4. Analysis of variance

It was used to test the significance of difference among the five treatment periods for the manipulable variables of continuous nature (Quantitative variables).

3.5.5. Friedman's two way analysis of variance by ranks

The Friedman's test was applied to determine the significance of difference among the five treatment periods for the manipulable variables of discontinuous nature (Qualitative variables). Friedman's test was done by using the formula -

$$X^2 = \frac{12}{np(p+1)} \sum_{j=1}^n R_j^2 - 3n(p+1)$$

Where n = number of farmers (34)

p = the number of treatments/crop season (5)

R_j = the sums of ranks with reference to treatment

3.6. Hypothesis set for the study

In the light of the assumptions made on the type of influence, the group management approach effects on the various impact variables, The following null hypotheses were formulated:

1. There will not be any significant influence of group management approach on the yield of rice .
2. There will not be any significant influence of group management approach on the income of the farmer.
3. There will not be any significant influence of group management approach on the expenditure of main field preparation.
4. There will not be any significant influence of group management approach on the expenditure of seeds and sowing.
5. There will not be any significant influence of group management approach on the expenditure of transplanting.
6. There will not be any significant influence of group management approach on the expenditure of manures and manuring.

7. There will not be any significant influence of group management approach on the expenditure of plant protection practices.
8. There will not be any significant influence of group management approach on the expenditure of weeding.
9. There will not be any significant influence of group management approach on the expenditure of harvesting.
10. There will not be any significant influence of group management approach on the information sources.
11. There will not be any significant influence of group management approach on the adoption of package of practices.
12. There will not be any significant influence of group management approach on the social participation.
13. There will not be any significant influence of group management approach on the knowledge.
14. There will not be any significant influence of group management approach on the cosmopolitaness.

15. There will not be any significant influence of group management approach on extension orientation.
16. There will not be any significant influence of group management approach on the management orientation.
17. There will not be any significant influence of group management approach on the attitude.
18. There will not be any significant influence of group management approach on the group cohesiveness.

RESULTS

CHAPTER - 4

R E S U L T S

Keeping the objectives of the study in view, the results of the study are presented under the following heads:-

- 4.1 Information on Socio-psychological and economic characteristics of the respondents
- 4.2 Reasons for failure of earlier group approaches.
- 4.3 Constraints in increasing rice production.
- 4.4 Impact of group management approach on the selected variables.
- 4.5 Preference of extension methods by the respondents

4.1. Information on Socio-psychological and economic characteristics of the respondents.

The analysis on the existing socio-psychological and economic factors became imperative to design the suitable approach for increasing the paddy production. Hence these characters of the respondents were analysed based on the Bench Mark Survey.

4.1.1. Socio-psychological variables

The distribution pattern of the respondents on various socio-psychological variables based on the Bench Mark Survey is presented in the following pages.

4.1.1.1. Age

The distribution of the respondents in various age categories is presented in Table 4.

Table 4. Distribution of the respondents in various age categories

(n=34)		
Sl.No.	Category	Distribution (per cent)
1.	Young	-
2.	Middle	67.65
3.	Old	32.35
	Total	100.00

From the data on Table 4 it could be observed that 67.65 per cent of the respondents belonged to the middle age group and 32.35 per cent of the respondents belonged to the old age group. None of the respondents belonged to the young age group. This clearly indicates that youngsters below the age of 16 were not involved in the rice cultivation in the experimental area and so also after 51 years of age a gradual decrease in trend was noticed in the number of persons engaged in farming operations.

4.1.1.2. Caste

The caste-wise distribution of respondents is shown in Table 5.

Table 5. Caste-wise distribution of respondents

(n = 34)		
Sl.No.	Caste\religion	Distribution (per cent)
1.	Hindu Nadar	91.18
2.	Christian Nadar	8.82
3.	Other castes	Nil
	Total ...	100.00

From the Table it is clear that there was a preponderance of respondents from the Hindu Nadar community. Only 8.82 per cent of the respondents were from the Christian Nadar community. However, from the angle of caste classification, the entire farming community in the study area could be considered as belonging to the same caste constellation.

4.1.1.3 Social participation

The distribution pattern of the respondents based on their social participation is given in table 6.

Table 6. Distribution of the respondents
based on their social participation.

(n=34)		
Sl.No.	Level of social participation	Distribution (per cent)
1	low	64.70
2	Medium	29.41
3	High	5.89
Total		100.00

A close review of the Table reveals that in the initial evaluation of the research area, majority of the respondents were having low social participation (64.70), followed by medium social participation group (29.41%). Only 5.89 per cent respondents were having High social participation in the beginning of the study.

4.1.1.4. Knowledge about High yielding
varieties of rice.

The distribution pattern of the respondents based on their knowledge about High yielding varieties of rice is presented in Table-7

Table-7 Distribution of the respondents
based on their knowledge.

(n=34)		
Sl.No.	Level of Knowledge	Distribution (per cent)
1.	Low	50.00
2.	Medium	35.29
3.	High	14.71
Total		100.00

The above Table reveal that exactly 50 percent of the respondents belonging to low knowledge group, followed by medium knowledge group with 35.29 per cent of the respondents. In the high knowledge group only 14.71 per cent of the respondents had congregated.

4.1.1.5. Cosmopolitaness

The distribution patttern of the respondents based on their cosmopolitaness is given in Table 8.

Table:8. Distribution of the respondents based on
their cosmopolitaness

(n=34)		
Sl.No.	Level of cosmopolitaness	Distribution (per cent)
1.	Low	52.94
2.	Medium	38.23
3.	High	8.83
Total		100.00

It is sagacious to observe from the Table that the low category of cosmopolitanism topped with 52.94 per cent of the respondents followed by the medium category with 38.23 per cent. Only 8.83 per cent of the respondents had the character of high cosmopolitanism.

4.1.1.6. Extension orientation

The distribution of the respondents according to their extension orientation is given in Table-9

Table 9. Distribution of the respondents based on their extension orientation.

(n=34)

Sl.No.	Level of Extension orientation	Distribution (per cent)
1.	Low	79.41
2.	Medium	17.65
3.	High	2.94
	Total	100.00

The distribution pattern of the respondents based on their extension orientation revealed in clear terms that as large as 79.41 per cent of them had very little extension orientation. Among the remaining respondents, 17.65 per cent, and 2.94 per cent fell under medium and high categories respectively.

4.1.1.7. Management Orientation

The distribution of the respondents in relation to their management orientation is given in table-10

Table 10. Distribution of the respondents based on their management orientation.

(n=34)		
Sl.No.	Level of management orientation	Distribution (per cent)
1.	Low	41.18
2.	Medium	32.35
3.	High	26.47
Total		100.00

The analysis of the data in table 10 reveal that 41.18 per cent of the respondents had low management orientation at the initial evaluation of the study area. Nearly 1/3rd of the farmers (32.35 per cent) had medium orientation and about a quarter proportion (26.47%) had high management orientation.

4.1.1.8. Attitude towards group management

The distribution pattern of the respondents considering their attitude towards group management is given in table 11

Table 11. Distribution of respondents based on their attitude towards group management

(n=34)		
Sl.No.	Level of Attitude	Distribution (per cent)
1.	Low	14.71
2.	Medium	67.64
3.	High	17.65
Total		100.00

A perusal of the above data showing the distribution of the respondents in attitude categories bring to light that only 17.65 per cent of the respondents had favourable (high) attitude towards the group management approach. As much as 4/5th of the respondents had unfavourable attitude with 57.64 and 14.71 per cent under medium and low categories respectively.

4.1.1.9. Occupation

The occupation-wise distribution of the respondents in the study area is given in the Table.12

Table.12 Distribution of the respondents
occupation-wise

(n=34)		
Sl.No.	Name of occupation	Distribution (per cent)
1.	Agricultural labourers	48.83
2.	Business	11.76
3.	Agriculture	28.82
4.	Services	10.59
Total		100.00

An analysis of the data in table 12 revealed that the agricultural labourers formed the major force (48.83%) in the occupation structure, followed by agriculturists (28.82%); business (11.76%) and services (10.59%). It may be noted that the occupation considered here was the main one and all the respondents were engaged in rice' cultivation either in full time or part-time basis.

4.1.1.10 Education

The distribution of the respondents based on formal education is shown in Table.13

Table 13 Distribution of the respondents
education-wise

(n=34)

Sl.No.	Level of education	Distribution (per cent)
1.	Illiterate	14.70
2.	Can read only	14.70
3.	Can read and write	5.88
4.	Primary education	2.94
5.	Middle level education	17.66
6.	High School and above	44.12
Total		100.00

A close view of the Table 13 could reveal that approximately half the proportion of the respondents (44.12%) were high school educated. The second major category was the respondents who were middle school educated (17.66%), the third place was bracketted by both illiterate and can read only category (14.70%). On the whole, the literacy level of the respondents was good with more than 85 per cent of them falling under the literate group.

4.1.1.11. Use of sources of information

The information source use pattern of the respondents is presented in Table-14.

Table-14. Use of sources of information

(n=34)		
Sl.No.	Level of information source use	Distribution (percent)
1.	Low	17.64
2.	Medium	58.83
3.	High	23.53
Total		100.00

The data on table 14 revealed that only 23.53 per cent of the respondents were in the high category of information source users. Majority (58.83 per cent) of the respondents were found to be in the medium category and 17.64 per cent belonged to the category of 'lower' in this respect.

4.1.1.12 Adoption of package of practices

The distribution of respondents adopting recommended package of practices of paddy is given in Table.15.

Table 15 Distribution of respondents based on adoption of package of practices

(n=34)		
Sl.No.	Category of adopters	Distribution (per cent)
1.	Lower	70.59
2.	Medium	11.76
3.	High	17.65
Total		100.00

With regard to the adoption of package of practices for high yielding varieties of rice, the vast majority of the respondents (70.59%) were falling in the low adoption range. The remaining respondents were in the range of medium adoption (11.76%) and high adoption (17.65%)

4.1.1.13 Group cohesiveness

The distribution of respondents under group cohesiveness is given in table 16.

Table:16 Distribution of respondents based on group cohesiveness.

(n=43)		
Sl.No.	Level of group cohesiveness.	Distribution (per cent)
1.	Low	87.65
2.	Medium	12.35
3.	High	----
Total		100.00

The data from the table revealed that majority of the respondents (87.65%) were belonged to low level of group cohesiveness, where as, only 12.35 per cent of them were categorised under medium level of group cohesiveness. None of the respondents were seen belonged to high level of group cohesiveness in the study area.

4.1.1.14 Family size

The distribution of the respondents with regard to family size is depicted in the table 16a.

Table 16a. Distribution of farmers' size of family

(n=34)		
Sl.No.	Size of family	Distribution (per cent)
1.	upto 5 members	37.06
2.	More than 5 members	62.94
Total		100.00

A look at the table 16 revealed that 37% of the respondents were in the distribution pattern upto 5 members and 62.94 in the category of more than 5 members.

4.1.1.15 Size of farm holding

The distribution pattern of respondents based on their size of holdings is indicated in table 17.

Table 17 Distribution of respondents based on their size of farm holdings

(n=34)		
Sl No.	Size of farm holdings	Distribution (per cent)
1	Upto 1 acre	91.18
2	Upto 2 acres	8.82
Total		100.00

An analysis of the table revealed that majority of farmers (91.18%) were in possession of upto 1 acre and only very negligible number of farmers (8.82%) were possessing upto 2 acres. This clearly indicates that the entire study area is coming under the group of marginal farmers.

4.1.2. Economic Variables

4.1.2.1. Yield obtained

The distribution of the respondents under various yield categories is presented in Table 18. It is evident from the Table that a large majority, (79.41%) got only medium yield, whereas 17.65 per cent of the respondents obtained high yield.

Table-18. Distribution of farmers based on yield

(n=34)		
Sl.No.	Yield rate	Distribution (per cent)
1.	Low	2.94
2.	Medium	79.41
3.	High	17.65
Total		100.00

4.1.2.2. Cost of cultivation

The distribution of the respondents in the cost category under various operations are presented below.

4.1.2.2.1 Main field preparation

Table-19. Distribution of respondents based on their expenditure on mainfield preparation.

(n=34)		
Sl.No.	Expenditure range	Distribution (per cent)
1.	Low	47.06
2.	Medium	50.00
3.	High	2.94
Total		100.00

It could be observed from the Table 19 that with regard to cost of mainfield preparation exactly 50 percent of the respondents fell in the medium expenditure level, and 47.06 percent of the respondents under the low expenditure category. Whereas, high expenditure on mainfield preparation was incurred by only one farmer (2.94%)

4.1.2.2.2. Seeds and sowing.

The distribution pattern of the respondents based on their cost of cultivation under seeds and sowing is shown in the table 20.

Table No:20. Distribution of the respondents based on expenditure on seeds and sowing.
(n=34)

Sl.No.	Expenditure range	Distribution (per cent)
1.	Low	55.88
2.	Medium	41.18
3.	High	2.94
Total		100.00

The analysis of the Table No.20 revealed that 55.88 percent of the respondents were having low expenditure on seeds and sowing, closely followed by medium expenditure with 41.18 percent. Only one farmer (2.94%) incurred low expenditure with regard to seeds and sowing.

4.1.2.2.3. Transplanting

The distribution pattern of the respondents based on expenditure on transplanting is given in Table 21.

Table No.21. Distribution of respondents based on expenditure, on transplanting
(n=34)

Sl.No.	Expenditure range	Distribution (per cent)
1.	Low	64.71
2.	Medium	29.41
3.	High	5.88
Total		100.00

From the Table No.21, it could be assessed that here also a large majority of the respondents (64.71 %) had spent low expenditure on transplaning, followed by 29.41 percent with medium expenditure. Only 5.88 percent had incurred high expenditure.

4.1.2.2.4. Manures and Manuring

The distribution pattern of the respondents in relation to the expenditure on manures and manuring is presented in Table-22.

Table No:22. Distribution of respondents based on their expenditure on manures and manuring

(n=34)		
Sl.No.	Expenditure range	Distribution (per cent)
1.	Low	41.18
2.	Medium	38.25
3.	High	20.57
Total		100.00

From the data on Table-22, it is clear that 41.18 percent of the respondents were having low expenditure on manures and manuring, closely followed by medium expenditure with 38.25 percent and high expenditure was incurred by 20.57 percent of the respondents.

4.1.2.2.5 Plant protection operation

Distribution pattern of the respondents in relation to the expenditure of plant protection is given in Table-23.

Table No:23. Distribution of the respondents based on their expenditure on plant protection operation.

(n=34)		
Sl.No.	Expenditure range	Distribution (per cent)
1.	Low	29.41
2.	Medium	55.88
3.	High	14.71
Total		100.00

A glance at the Table 23 revealed that the majority of the farmers (more than 50%) were under medium expenditure category of plant protection operation, followed by low expenditure of 29.41 percent of the respondents. The high expenditure category was represented by 14.71 percent of the respondents.

4.1.2.2.6 Weeding

The distribution pattern of the respondents based on their expenditure on weeding is given in Table 24.

Table No:24. Distribution of farmers based on their expenditure in weeding.

(n=34)		
Sl.No.	Expenditure range	Distribution (per cent)
1.	Low	11.76
2.	Medium	52.95
3.	High	35.29
Total		100.00

From the above table, it is clear that more than half of the respondents (52.95%) fell under medium expenditure category and 35.29 percent of the respondents were under high expenditure category. Unlike previous operations, only a meagre of 11.76 percent of the respondents fell under low category of expenditure.

4.1.2.2.7. Harvesting

The distribution pattern of the respondents in relation to their expenditure on harvesting is presented below:

Table No:25. Distribution of respondents based on their expenditure on harvesting.

(n=34)		
Sl.No.	Expenditure range	Distribution (per cent)
1.	Low	11.77
2.	Medium	29.41
3.	High	58.82
Total		100.00

The proportion of the respondents falling under the categories of expenditure on harvesting gave a different picture as compared to operations shown earlier. A majority of the respondents (58.82%) came under high category of expenditure, with more than 1/4th of the respondents (29.41%) under medium category. Only 11.77 percent had fallen under the category of low expenditure.

4.1.2.3. Income:

The distribution pattern of the respondents based on their income is given in table 26.

Table No:26 Distribution of the respondents based on their annual income

(n=34)		
Sl.No.	Level of income	Distribution (per cent)
1.	Low	2.94
2.	Medium	76.48
3.	High	20.58
Total		100.00

The distribution pattern in Table 26 revealed that more than 3/4th of the respondents had medium income from rice cultivation(76.48%). The second place went to high income group with 20.58 percent and the least position was with low income group of the respondents(2.94%)

4.2. Reasons for the failure of earlier group approaches.

The reasons for failure of earlier group approaches as expressed by the respondents are furnished in the table -27.

The mean score and coefficient of variation computed on all the reasons for failure of earlier group approaches are presented in the appendix-I..

Table 27. Reasons for failure of earlier group approaches

Sl. No.	Reasons	Farmers mean score	Rank
1	Political system does not permit group approaches.	3	1
2	Possible only when there is continuous leadership.	3	1
3	Group approach dies out when external leadership is withdrawn.	2.97	3
4	No knowledge about group management	2.95	4
5	Farmers are not co-operative	2.95	4
6	Heterogenous group members are more in villages.	2.92	6
7	No proper missionary to popularise group management.	2.88	7
8	Less scope for unanimous decision	2.83	8
9	No proper extension guidance	2.80	9
10	No proper guidance from Govt. side	2.80	9
11	Inadequate number of voluntary organisations.	2.78	11
12	Public involvement is less	2.76	12

Out of the 31 reasons, 12 reasons alone could be considered important ones based on the criteria spelt out elsewhere. The results in this respect indicated that the political system does not permit and 'possible only when there is continuous leadership' emerged as the most important reasons (1st rank) followed by 'group approach dies out when an external leadership is withdrawn', (3rd rank) 'no knowledge about group management and farmers are not co-operative', 'heterogeneous group members are more', 'no proper missionary to popularise group management', 'less scope for unanimous decision', 'no proper extension guidance' and 'no proper guidance from Government side', 'inadequate number of voluntary organisations' and 'public involvement is less', respectively..

On closer scrutiny the reasons emerged as important ones could be broadly categorised into lack of leadership, knowledge, guidance, and favourable policy by the Government

4.3. Constraints in increasing rice production

The 71 constraints in increasing rice production responded by the farmers were categorised into important and non-important ones, based on the criteria spelt out in the research methodology chapter are given in the Appendix-II with respective mean score and coefficient of variation. Out of the 71 constraints, 32 were found to be important and they are presented in table 28, with the mean scores. Ranking

was not resolved to in this case as that of reasons for failure of group management approach, since variations existed in the mean score as well as the coefficient of variation was minimal and large number of constraints were found to be clustered in the same rankings.

Table 28 Constraints in increasing rice production

Sl. No.	Constraints in the rice production	Mean Score
1	Non-availability of quality seeds	3
2	Non-availability of dolomite, lime etc.	3
3	High cost of soil amendments	3
4	Non-availability of plant protection equipment	3
5	High cost of pesticides & fungicides	3
6	Non-availability of recommended pesticides and fungicides	3
7	Hand weeding highly expensive	3
8	Unavailability of labourers in time for weeding	3
9	Lack of financial assistance	3
10	Procedural delay in getting financial assistance	3
11	Lack of stabilised market	3
12	Severe incidence of diseases	3
13	High cost of cultivation of high yielding varieties of rice	3
14	Largescale conversion of rice fields	3

15	High yielding varieties require intensive care	3
16	Part time cultivators did not opt for high yielding varieties of rice	3
17	No community nursery	2.97
18	Inadequate quantity of straw in high yielding varieties of rice	2.97
19	High cost of organic manure and fertilizers	2.97
20	Unavailability of organic manure and fertilizer	2.97
21	Lack of proper marketing system	2.97
22	Severe incidence of pests	2.97
23	Delayed and early harvesting due to adverse climate.	2.97
24	High wage rate for agriculture labourers	2.95
25	Poor turnover from agricultural labourers	2.95
26	Water logging	2.95
27	Lack of drainage	2.95
28	Low price for high yielding varieties of rice	2.95
29	Lack of technical advice on high yielding varieties of rice.	2.97
30	Number of agrl.labourers decreasing day by day	2.92
31	Sufficient quantity of seeds not available in time	2.90
32	Lack of timely advice on pests & diseases	2.88

In order to draw conclusion from the array of reasons, an attempt was made to categorise these reasons in to a small number based on commonness prevailing over a set of reasons. The nature of content reflected on the constraints enlisted in the table surfaced the areas of non-availability of inputs, (Items 1,2,4,6,9,10,20 and 31), high cost of inputs (items 3,5 & 19) incidence of pests and disease (items 12 & 22), labour related problems (7,8,24,25 & 30), marketing (11 and 21), drainage (26 & 27), and lack of technical advice (29 & 32). The remaining reasons either reflected inherent problem of high yielding varieties of rice namely cost, inadequacy of straw, low price, intensive care or problems due to no community nursery and climatic conditions.

4.4. Impact of group management approach.

As discussed in the methodology chapter, the impact variables considered for the study were a) use of information sources, b) adoption of package of practices, c) social participation, d) knowledge about high yielding varieties of rice, e) cosmopolitaness, f) extension orientation, g) management orientation, h) attitude towards group management, i) cohesiveness, (Fig. IV) (socio psychological variables), j) yield, k) income, l) cost of cultivation of different operations (economic variables), and (m) preference of extension methods tried in the study. (Fig. V)

The changes in the manipulable variable of both socio - psychological and economic nature brought about by group management approach are presented below. The results indicating the impact in these variables were brought in terms of the distribution pattern of farmers in various categories with regard to the variables and sum of ranks/meanscores obtained by the farmers in the five treatment periods. It may be noted that the categorisation was done based on the minimum and maximum score in a variable considering all the five treatment periods. With regard to sum of ranks it may be pointed out here that higher rank was allotted to higher possession of character exhibited by a respondent among the treatment periods.

4.4.1. Socio Psychological Variables

The distribution pattern of the respondents with respect to all the socio-psychological variables considered under study during the treatment periods and the results of Friedman's X^2 analysis for the respective variables are presented in Table 29 and 30 respectively.

4.4.1.1. Use of Information sources.

The distribution pattern of the respondents with regard to the use of information sources during the treatment periods as well as the sum of rank and the result of Friedman's two way analysis are presented in the Table 29.

FIG. IV. IMPACT OF GROUP MANAGEMENT APPROACH ON SOCIO-PSYCHOLOGICAL VARIABLES.

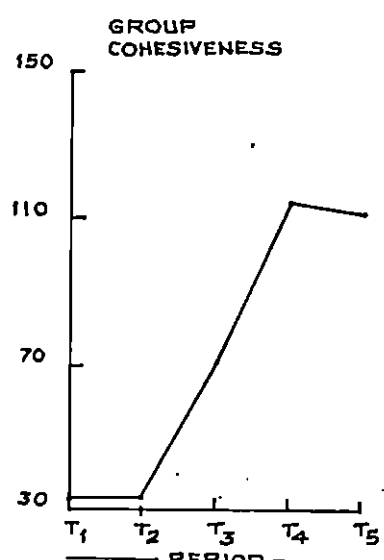
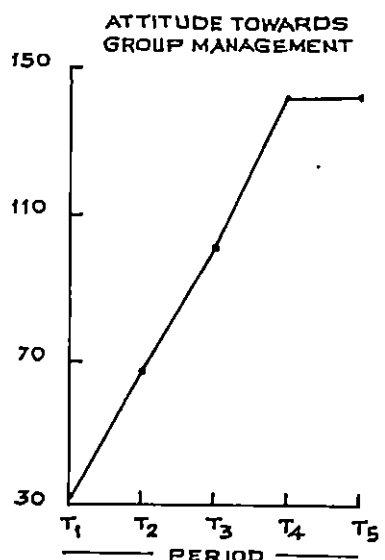
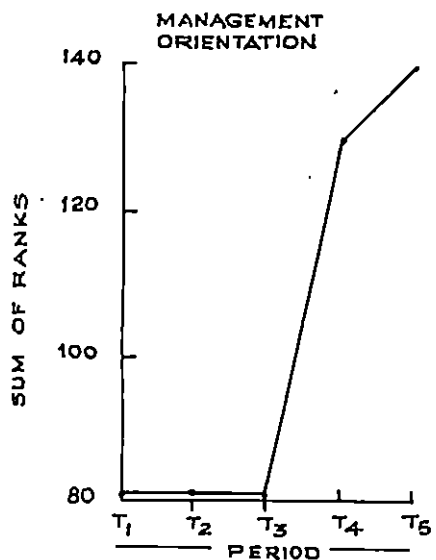
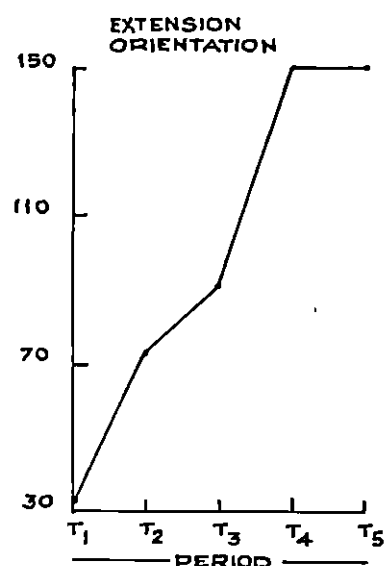
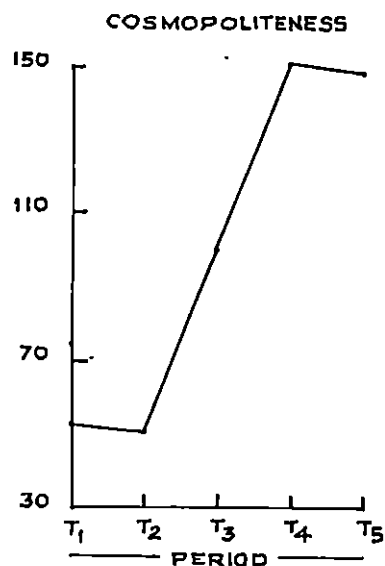
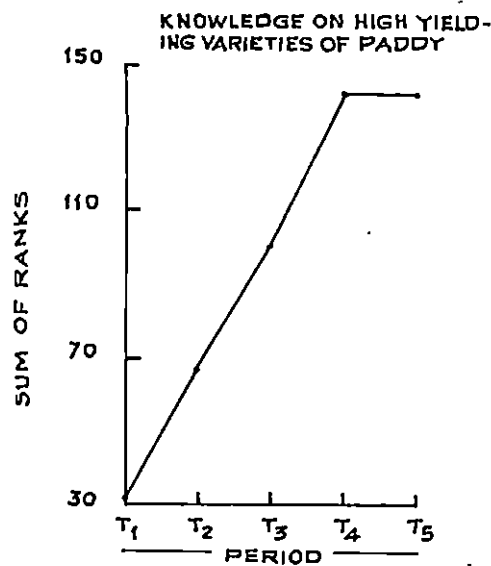
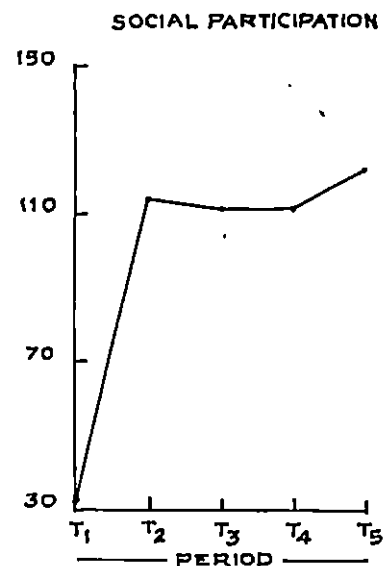
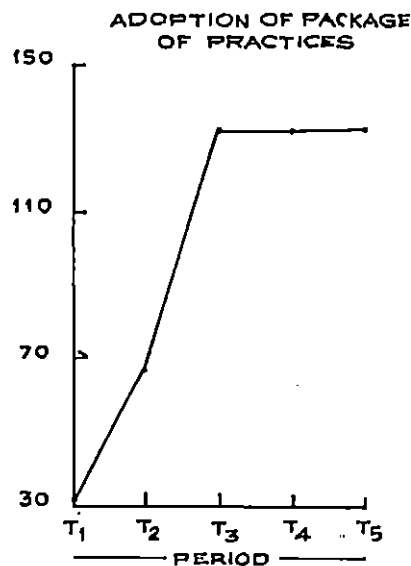
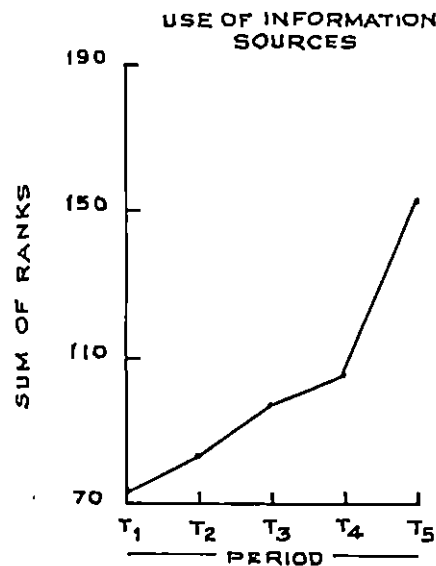
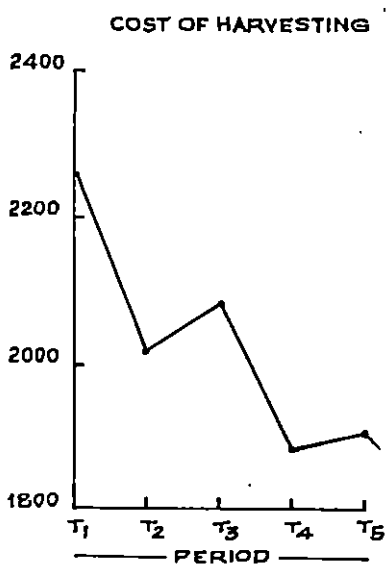
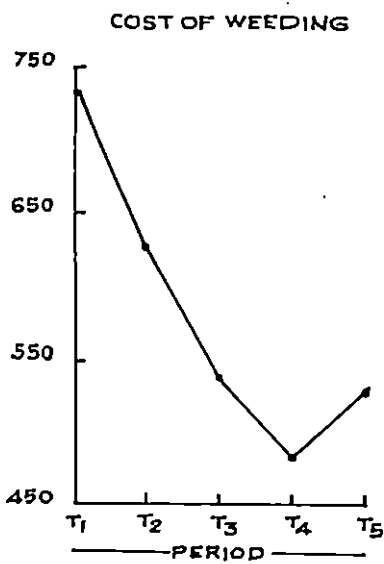
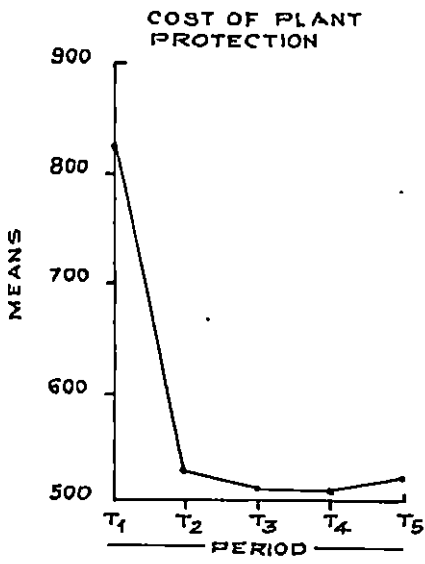
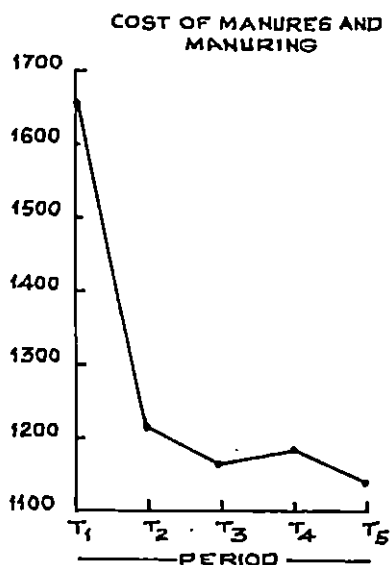
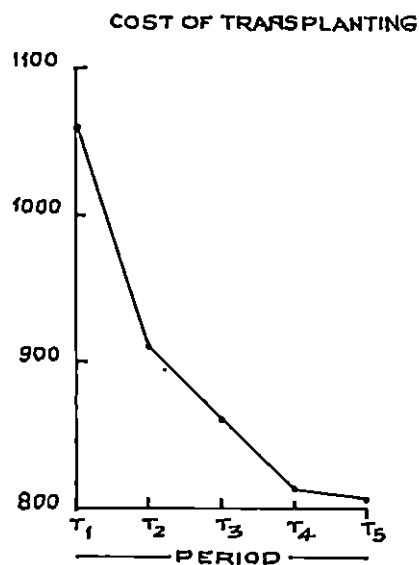
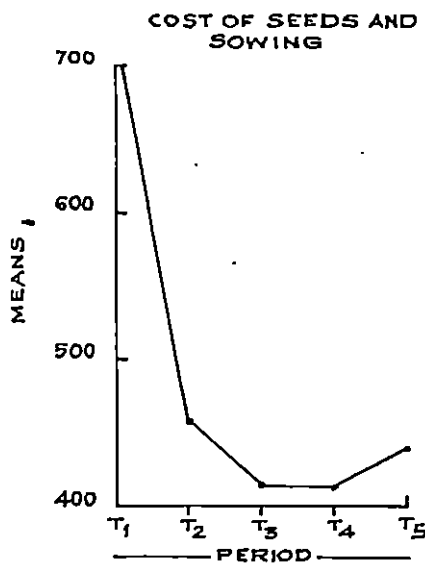
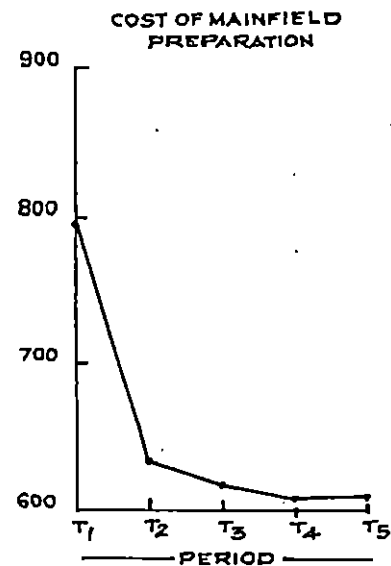
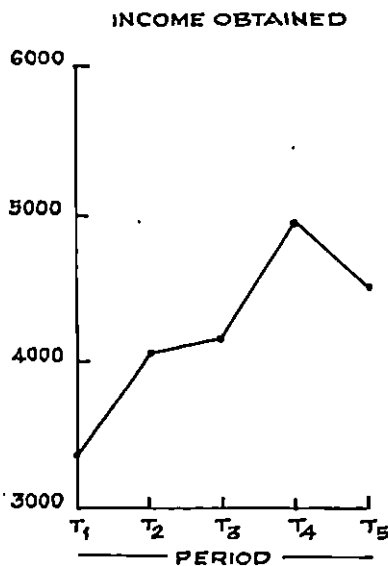
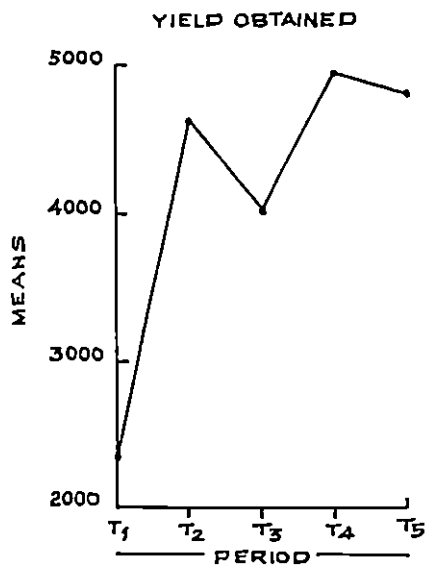


FIG. 5. IMPACT OF GROUP MANAGEMENT ON ECONOMICAL VARIABLES.



It could be observed from the table (table No.29) that while 58.82 and 41.18% of the respondents were categorised under low, and medium group of use of information sources respectively, none of the farmer was found in the high information use category before their exposure to group management approaches (T1). After the exposure to group management approach and following the same, it could be seen from the table, that the proportion of farmers be falling in low category decreased over the periods from T2 (55.88 per cent) to T5 (26.47 per cent). The proportions of farmers in low category during these four periods were less when compared to T1. Compensating the decrease in the low category, the proportion of farmers in the medium category of information source use increased over the treatment periods from T2 to T4 (44.00 per cent to 58.00 per cent) and decreased to 17.65 per cent during T5. This decrease was in correspondence to the increased proportion of farmers of 55.88 per cent in the high category during this period. The results revealed that the use of various information sources had improved due to the exposure to and adoption of group management approach in rice cultivation. Similarly, from the sum of ranks worked out (Table No.30) in the Friedman's analysis, it could be seen that there was increase in the sum of ranks over the periods from T1 to T5. The sum of ranks during T1 was 74 and that during T5,156. The Chi-square

value of Firedman's analysis (44.35) indicated that there was a significant change on the favourable side in the use of information sources, by respondents exposed to the group management approach. This led to the rejection of hypothesis that there will not be any influence of group management approach on the use information sources by the respondents.

Table No.29 : The Distribution patterns of respondents
in relation to Socio-psychological variables

Sl. No.	variable	Category	Crop seasons				
			T1	T2	T3	T4	T5
1	use of sources of information	Low	58.82	55.88	44.12	41.18	26.47
		Medium	41.18	44.12	55.88	58.82	17.65
		High	---	---	---	---	55.88
2	Adoption of package of practices	Low	85.29	---	---	---	---
		Medium	14.71	2.94	---	---	---
		High	---	97.06	100.00	100.00	100.00
3	Social participation	Low	91.18	61.77	61.77	58.82	38.24
		Medium	8.82	35.29	32.35	38.24	58.82
		High	---	2.94	5.88	2.94	2.94
4	Knowledge about high yielding varieties of paddy	Low	100.00	8.82	---	---	---
		Medium	---	73.53	17.65	---	---
		High	---	17.65	82.35	100.00	100.00
5	Cosmopolitaness	Low	91.18	76.47	50.00	2.94	2.94
		Medium	8.82	14.71	29.41	---	---
		High	---	8.82	20.59	97.06	97.06
6	Extension Orientation	Low	82.35	17.65	11.76	5.88	5.88
		Medium	17.65	67.65	76.48	8.83	8.83
		High	---	14.70	11.76	85.29	85.29
7	Management orientation	Low	100.00	100.00	91.18	50.00	32.35
		Medium	---	---	2.94	38.24	11.76
		High	---	---	5.88	11.76	55.89
8	Attitude towards group management	Low	100.00	---	---	---	---
		Medium	---	35.30	---	---	---
		High	---	64.70	100.00	100.00	100.00
9	Group cohesiveness	Low	70.35	67.65	11.76	---	---
		Medium	29.65	32.35	64.71	20.59	20.59
		High	---	---	23.53	79.41	79.41

Table No.30 Impact of Group management approach on
Socio-physiological variables

Sl. No.	Socio-psychological variables	sum of ranks of crop seasons					χ^2 value
		T1	T2	T3	T4	T5	
1	use of information sources	74	84	97	103	156	44.35 **
2	Adoption of package of practices	34	68	136	136	136	108.80 **
3	Social participation	36	119	116	116	130	65.99 **
4	Knowledge about high yielding varieties of rice	34	69	104	148	148	129.91 **
5	Cosmopolitaness	60	55	101	152	152	105.95 **
6	Extension orientation	38	79	95	150	150	111.74 **
7	Management orientation	80	80	80	130	140	43.29 **
8	Attitude towards group management	34	68	102	149	149	117.97 **
9	Group cohesiveness	34	34	70	119	117	88.34 **

** significant at 1% level

4.4.2. Adoption of package of practices

The categorisation of the respondents based on their adoption of package of practices is shown in the Table - 29 along with the sum of the ranks and chi-square value of Friedman's analysis. (Table :30)

A mere look at the table would let one know that the changes brought in the factor of adoption of package of practices over the period was fast and complete. It is evident from the table that the proportion of farmers in T1 period in the low category was to the tune of 85.29 per cent and under the medium category there were 14.71 per cent of farmers, but the picture during other periods was diagonally opposite with 97.06 per cent in high category during T2 and 100 per cent thereafterwards during T3, T4 and T5. Similarly the trend of sum of ranks also showed an increase from 34 during T1 to 68 in T2 and the trend continued during T3, T4 and T5 with value of 136. Chi-square (108.8) of Friedman's analysis also revealed that the change brought in the adoption of package of practices through group management approach was significant.

Accordingly, the hypothesis that there will not be any influence of group management approach on the adoption of package of practice was rejected.

4.4.3. Social participation

The distribution of the respondents under low, medium and high categories of social participation and the results of Friedman's analysis are presented on Tables 29 and 30 respectively.

The table revealed that before the group management approach (T1) 91.18 percent of the respondents had low social participation. The remaining 8.82 per cent of them fell under medium category of social participation. While a decreasing trend in the proportion of farmers in the low category over the treatment periods of T2, T3, T4 and T5 could be noticed, there was an increasing trend in the proportion of farmers in the medium category. The proportion in the high category was higher during and after exposure periods (T2, T3, T4 and T5), than the pre exposure period (T1). As a corollary to the above, the sum of ranks after the exposure to the group management approach was higher than that before pre-exposure to group management approach (T1) indicating that group management approach had brought in favourable changes in the character of social participation of the farmers. This has been confirmed from the results of Friedman's analysis with significant chi-square value (65.99 **) which is a pointer to the impact brought about by the group management approach on this variable.

Consequent to this finding the hypothesis that there will not be any influence of group management approach on social participation was rejected.

4.4.4. Knowledge about High yielding varieties of rice

The percentage of the respondents falling under various categories of knowledge along with the sum of ranks based on Friedman's analysis are presented in Tables 29 and 30 respectively.

The data presented in table 29 showed that all the respondents congregated in the low knowledge group during pre-exposure period whereas in the post-exposure season of T2, T3, T4 and T5 there occurred a marked improvement, as indicated by high proportion of the respondents in the medium and high levels of knowledge. It could be noticed that during T4 and T5 the entire sample was under high category of knowledge. The sum of ranks also clearly indicated that there was substantial improvement in the knowledge acquisition over the treatment periods. This is evidently confirmed by the significant chi-square value of 129.91 revealing that group management approach had definitely played a vital role in enhancing the knowledge level of the respondents. This led to the rejection of hypothesis that there will not be any influence of group management approach of knowledge of the respondents on rice cultivation.

4.4.5 Cosmopolitaness

Cosmopolitaness of the respondents over the treatment periods are presented in Table 29. The sum of ranks and chi-square value of Friedman's analysis are also presented in Table:30

It is clear from the data that there occurred a gradual but a favourable improvement in the cosmopolitaness of the respondents over the group management approach period. It could also be noted from the table that more than 90 per cent of the respondents were in the low category of cosmopolitaness and the magnitude of the proportion in this category receded over the group management approach period. Corresponding to the reduction happened in the low category, there was addition in the proportion of the respondents in the medium category during T2 period, and in the high category during the rest of the periods. This trend is well corroborated in the sum of ranks which increased from T1 to T5. The significant chi-square value indicated a clear cut impact of group management approach on the cosmopolitaness of the respondents. Based on these findings, the hypothesis stated earlier that there will not be any influence of group management approach on the costmopolitaness of the respondents was rejected.

4.4.6. Extension Orientation

The distribution of the respondents in various categories of their orientation to extension and the sum of ranks are presented ⁱⁿ Table.29 and 30.

It could be noted that before the exposure to group management approach (T1), as large as 82.35 per cent of respondents had low level of extension orientation and only 17.65 per cent of the respondents had medium level of extension orientation and no respondent was found in the high category. The pattern of distribution during T4 and T5 exhibited more or less a reverse trend having more than 85 per cent of the respondents in the high category. The improvement in the extension orientation in terms of distribution pattern had enough support from the sum of ranks over the exposure period. The significant chi-square value 111.74 worked out in Friedman's analysis further confirmed that group management approach had brought in a significant change in the orientation of the respondents towards extension. Based on these results, the hypothesis set that there will not be any influence of group management approach on extension orientation of the respondents was rejected.

4.4.7. Management orientation

The categorised distribution of the respondents with respect to management orientation is shown in Table 29.

From the Table 29 it was seen that during T1 and T2 periods all the respondents had only low level of management orientation, and the categories, medium and high drew blank during these seasons. It could be deduced from the table that the proportion of the respondents in the low level of management orientation showed a receding trend thereafter with a shift towards increased trend in the medium and high levels of management orientation during the post-exposure period of T3, T4 and T5. The sum of ranks derived also was indicative of the improvement in the management orientation of the respondents from T3 period onwards. The chi-square value computed (43.29 **) confirmed that the changes brought on the management orientation of the respondents was significant, which led to the rejection of the hypothesis that there will not be any influence on management orientation due to group management approach.

4.4.8. Attitude towards Group management

The percentage of the respondents categorised during the five periods and the result of Friedman's analysis are presented in Tables 29 and 30. The results depicted in Table 29 were in line with the ones observed for other variables but the intensity of the attitudinal change was

something enormous, fast and total. The cent per cent farmers under low category during pre exposure period took a quantum jump of cent per cent distribution to the other pole of categorisation namely high level of attitude towards group management during the post-exposure periods of T3, T4, and T5. It may be pointed out here that the trend of distribution of the sum of ranks was more or less in tune with the one obtained in the adoption of package of practices. This was amply proved by the significantly high chi-square value of Friedman's analysis revealing that the group management approach

had influenced the attitude of the respondents towards group management very much favourably. This led to the rejection of the hypothesis that there will not^{be} any influence of the group management approach on the attitude of the respondents towards group management.

4.4.9. Group Cohesiveness

The distribution pattern with regard to group cohesiveness of the respondents and the results of Friedman's analysis are presented in Tables 29 and 30. Majority of the respondents were found to congregate in the low category of group cohesiveness during pre-exposure period (70.35%) and during T2 period (67.65%). The proportion in this category got reduced during T3, and became nil thereafter.

Corresponding increase was observed in the medium category during T3 and in the high category in T4 and T5 periods indicating an improvement in the group cohesiveness of the respondents due to exposure to group management approach. This has been evidently proved by the significant chi-square value also. This led to the rejection of hypothesis that there will not be any improvement in the group cohesiveness due to group management approach.

4.4.10. Economic variables

4.4.10.1. Yield obtained by the respondents

The analysis of the data in Tables 31 and 32 revealed that there existed a highly significant relationship between yield and group management efforts. On further scrutiny, it could be assessed that during the pre exposure period crop seasons, 70.59 per cent of farmers had low yield followed by 29.41 per cent of the respondents, with medium level of yield. This trend of yield was seen completely changed during the succeeding crop seasons. No respondent was seen to record low level of yield during the succeeding crops (T2, T3, T4 and T5 crop seasons). This was a remarkable change as the group management effort was concerned. During T2 crop season, 2.94 per cent of the respondents had medium level of yield and the remaining 97.06 per cent of the respondents had high level of yield. This trend was

slightly changed during T3 crop season which recorded 88.24 per cent of the respondents recording medium yield level and the remaining 11.76 percent of the respondents obtained high yields. Again this trend was seen completely changed under T4 and T5 crop seasons with all the respondents getting high yields for both the crop seasons. The 'F' value was also high indicating the significant positive relationship between yield and group management approach.

Table 31:

The distribution pattern of respondents in relation to
Economic variables

Sl. No.	Variable	category	Crop season				
			T1	T2	T3	T4	T5
1	Yield obtained	Low	70.59	-	-	-	-
		Medium	29.41	2.94	88.24	-	-
		High	-	97.06	11.76	100.00	100.00
2	Income from rice cultivation	Low	70.59	41.18	26.47	8.82	14.71
		Medium	29.41	50.00	70.59	82.36	76.47
		High	---	8.82	2.94	8.82	8.82
3	Cost of mainfield preparation	Low	2.94	100.00	100.00	100.00	100.00
		Medium	64.70	---	---	---	---
		High	32.36	---	---	---	---
4	Cost of seeds & sowing	Low	---	100.00	100.00	100.00	100.00
		Medium	---	---	---	---	---
		High	100.00	---	---	---	---
5	Cost of transplanting	Low	---	64.71	100.00	100.00	100.00
		Medium	73.53	35.29	---	---	---
		High	26.47	---	---	---	---
6	Cost of manures & manuring	Low	---	100.00	100.00	100.00	100.00
		Medium	29.41	---	---	---	---
		High	70.59	---	---	---	---
7	Cost of plant protection	Low	---	100.00	100.00	100.00	100.00
		Medium	8.82	---	---	---	---
		High	91.18	---	---	---	---
8	Cost of weeding	Low	---	2.94	70.59	100.00	85.29
		Medium	8.82	91.18	21.41	---	14.71
		High	91.18	5.88	---	---	---
9	Cost of harvesting	Low	---	47.06	23.53	100.00	100.00
		Medium	11.76	38.24	55.88	---	---
		High	88.24	14.70	20.59	---	---

Table No.32:

Impact of Group management on Economic variables

Mean values of crop seasons								
Sl. No.	Economic variables	T1	T2	T3	T4	T5	CD	'F'
1	Yield obtained Kg/hectare	2863	4749	4056	4952	4712	208	200.08*
2	Income from rice cultivation (Rs./ha.)	3362	4074	4165	4906	4561	500	10.36*
3	Cost of main-field preparation (Rs./ha.)	797	628	611	606	611	16	191.02*
4	Cost of seeds and sowing (Rs./ha.)	722	457	419	418	437	9	2066.73*
5	Cost of transplanting (Rs./ha.)	1057	917	854	818	813	17	272.78 *
6	Cost of manures & manuring (Rs./ha)	1652	1218	1165	1193	1141	26	511.86 *
7	Cost of plant protection (Rs./ha.)	825	530	510	509	517	11	1187.67 *
8	Cost of weeding (Rs./ha.)	733	625	536	479	527	17	273.77 *
9	cost of harvesting (Rs./ha.)	2253	2050	2078	1894	1905	31	183.25 *

** Significant at 1% level

Hence the hypothesis that there will not be any significant influence of group management approach on yield is rejected.

4.4.10.2. Income from Rice cultivation

In the Tables 31 and 32 the distribution pattern of annual income and results of analysis of variance in this respect are presented. During T1 the annual income of the majority of the respondents (70.59 per cent) was in 'low' category and only 29.41 per cent of the respondents in the medium category of income. After the exposure to group management approach the distribution pattern had shown slight reverse of the trend than the pre-exposure period with majority of the respondents under the medium category during T2 to T4. The mean income presented in T2, T3, T4 and T5 had shown much improvement over the pre-exposure period. The result of the analysis of variance also confirmed that there was significant influence of group management approach on annual income. The critical difference worked out showed that the incomes reported during T2, T3, T4 and T5 were significantly higher than that during T1. Again, it was observed that the income during T2, T3 and T5 were on par and T4 was significantly higher than T2, T3 and T5. The analysis of variance proved beyond doubt that due to the influence of Group management approach the farmers could definitely accrue higher income. Based on these findings, the null hypothesis that there will not be any influence of

Group management on the annual income of the respondents was rejected.

4.4.10.3. Cost of cultivation

The data on the impact of group management approach on cost of cultivation under different operations are presented in the pages that follow.

4.4.10.3.1. Main field preparation

The percentage of the respondents categorised under various yield levels and the results of analysis of variance are presented in Tables 31 & 32.

It is sagacious to note from Tables 31 and 32 that more than 97 per cent of the respondents incurred medium to high cost for main field preparation while only 2.94 per cent of the respondents could prepare the main field with less cost. Altogether a different but encouraging trend was observed during the post-exposure periods of T2 to T5 with cent percent farmers in low cost category. This indicates clearly that Group management approach had helped farmers in reducing the cost incurred in main field preparation. The outcome of the finding from mean cost over the five treatment periods also indicated the same that they had shown a decreasing trend. The 'F' value of analysis of variance was highly significant which revealed that there was a significant change brought in by Group management approach in the form of reduction of cost for main field

preparation. From the C.D. value worked out it could be stated that there was a significant reduction in the cost during T2 - T5 as compared to T1 and cost incurred during T3, T4 and T5 were on par but different from T2. Hence the null hypothesis that there will not be any significant influence of Group management approach on the expenditure of main field preparation was rejected.

4.4.10.3.2. Seeds and sowing

The distribution of the respondents based on the cost incurred by them for seeds and sowing and the results of analysis of variance are presented in Tables 31 and 32.

The distribution pattern under various cost levels is more or less a replica of the finding obtained with regard to main field preparation with cent percent of farmers under high cost during T1 and the entire farmers in low cost category during the post-exposure period. The analysis of variance was significant, indicating that the group management approach had brought in significant reduction in the cost of seeds and sowing. Based on the C.D. values, it could be said that cost incurred after exposure to group management approach was significantly less than that in the pre-exposure period and during T3 and T4 it was on par and different from T3 and T5. This led to the rejection of hypothesis that there will not be any significant influence of the group management approach on the cost of seeds and

sowing incurred by the respondents.

4.4.10.3.3. Transplanting

The category-wise distribution of the respondents based on their expenditure on transplanting and the results of analysis of variance are presented in Tables 31 and 32. Here also, the distribution pattern of farmers was on par with the trend exhibited in the case of expenditure on seeds and sowing except during the period T2. During T1, majority of the respondents (73.53 percent) fell in the medium expenditure category leaving 26.47 percent under high expenditure category. In the case of T2, majority of the respondents (64.71 percent) had incurred only low expenditure leaving 35.29 percent in the medium expenditure category and no respondent was there in the high expenditure category. But the trend was completely reversed during T3, T4 and T5 with all the respondents in the low category. The analysis of variance showed tremendous influence. Group management approach had exhibited a reduction in the cost of transplanting. The critical difference worked out also proved that the expenditure on transplanting during T2, T3, T4 and T5 were reduced considerably due to the effect of Group management approach than the pre-exposure period (T1). The mean expenditure during T4 and T5 were on par and significantly lower than that during T2 and T3. Hence, the null hypothesis that there will not be any significant

influence of Group management approach on the cost of transplanting was rejected.

4.4.10.3.4. Manures and manuring

The distribution of the respondents based on the cost incurred by them under manures and manuring and the results of analysis of variance are presented in Tables 31 and 32. The distribution pattern under various cost levels is more or less the same as that of expenditure on seeds and sowing except during the period T1. In the case of T1 majority of the farmers were seen coming under the high expenditure category (70.59%) and the remaining 29.41 percent falling under medium expenditure category. A sudden reversal of the trend was noticed in the remaining T2, T3, T4 and T5 with cent percent of respondents falling under the low expenditure category as a result of the group management approach. The results of analysis of variance showed significant impact of group management in the expenditure on manures and manuring. The critical difference worked out also showed that the cost incurred during post-exposure of group management approach, was significantly less than that during the pre-exposure period. Even among these means during T3 and T5 were on par and T2 and T4 were different from the remaining. This result led to the conclusion that the null hypothesis that there will not be any significant influence on the cost of the manures and manuring by group management approach could be rejected.

4.4.10.3.5. Plant protection

The distribution pattern of the respondents under various categories of expenditure on plant protection and the results of analysis of variance are presented in Tables 31 and 32. The distribution pattern under various cost levels is more or less a replica of the findings obtained with regard to manures and manuring.

The analysis of variance was significant indicating that the group management approach had brought in significant reduction in the cost of plant protection operations. Based on the critical difference, it could be summarised that the cost incurred after the exposure to group management approach was significantly less than that of pre-exposure period. Even within these, the mean cost during T3, T4 and T5 were on par. Hence, the null hypothesis that there will not be any significant impact of group management approach on the cost of plant protection was rejected.

4.4.10.3.6. Weeding

The costwise distribution pattern of the respondents on the weeding operation along with the results of analysis of variance are presented in Tables 31 and 32.

There existed a gradual and decreasing trend during the course of the group management programme from pre-exposure to post-exposure periods. During pre-exposure period

majority of the respondents (91.18%) fell in the high expenditure group leaving only 8.82 percent under the medium expenditure group. During the post-exposure period, the percentage of the respondents under medium and high expenditure groups were negligible.

The analysis of variance results indicated that there existed significant influence of the group management approach on the expenditure of weeding. The C.D. value emphasised that the cost incurred during post-exposure period due to group management was comparatively less than that during the pre-exposure period and during T3 and T5 the means were on par and different from T2 and T4. Hence, the null hypothesis that there will not be any significant influence on the cost of weeding by group management approach was rejected.

4.4.10.3.7. Harvesting

The distribution pattern of the respondents based on their cost incurred during harvesting and the results of analysis of variance are presented in Tables 31 and 32.

From the results on tables 31 and 32, it could be seen that the expenditure pattern on harvesting during the post-exposure period was comparatively lesser than that of the pre-exposure period with majority of the respondents falling under the high cost category (88.24%), and only

11.76 percent under medium expenditure category, and no respondents were in the low expenditure category. But, during T2 and T3, all the respondents were distributed in all the three categories viz., low, medium and high with more percentage under the low and the medium categories in both the cases. However, there occurred a sudden clustering of all the respondents under the low category during T4 and T5 seasons. The outcome of the findings, relating to the mean cost during the five periods indicated that they had shown a decreasing trend except during T3. The analysis of variance is highly significant which revealed that there was a significant change brought in by group management in the form of reduction of the cost on harvesting. From the critical difference value worked out it could be stated that there was significant reduction noticed in the cost on harvesting during T2, T3, T4 and T5 as a result of group management approach. Hence, the hypothesis that there will not be any significant influence of group management approach on the cost of harvesting was rejected.

4.5. Preference of Extension methods

The mean score of various extension methods based on the preference rating done by the farmers during the five treatment periods along with the ranks for the practice, 'seed selection' are given in Table 33.

4.5.1. Seed SelectionTable No.33. Preference of extension methods for the practice - seed selection

Sl.No.	Extension methods	Mean Scores				
		T1	T2	T3	T4	T5
1.	Individual Contact	1.64(3)	1.67(4)	2.41(2)	2.26(3)	2.26(3)
2.	Group discussion	1.55(4)	2.02(3)	1.47(4)	2.35(2)	2.35(2)
3.	Farmers' Training	3.02(2)	2.35(2)	2.14(3)	1.50(4)	1.50(4)
4.	Field Visit	3.76(1)	3.94(1)	3.97(1)	3.88(1)	3.88(1)

It could be observed from the data in Table 33 that field visit was the most preferred (1st rank) extension method during seed selection stage in all the five periods. Farmers' training was ranked second during initial period of group management approach, and the same was considered as the least preferred method during T4 and T5. The methods, individual contact and group discussion which were preferred as third and fourth in that order occupies third and second positions during the later part of group management approach. From this, it could be stated that field visit was the most preferred method, farmers' training was preferred during initial periods, and group discussion during the later periods in so far as 'seed selection' was considered.

Table 34 - Preference of extension methods for the practice
'land preparation'

Sl.No.	Extension Methods	Mean Scores				
		T1	T2	T3	T4	T5
1.	Individual Contact	1.76(3)	2.05(3)	2.58(2)	2.79(2)	2.79(2)
2.	Group Discussion	1.41(4)	2.23(2)	1.38(4)	2.20(3)	2.20(3)
3.	Farmers' Training	3.02(2)	1.88(4)	2.02(3)	1.26(4)	1.26(4)
4.	Field Visit	3.76(1)	3.82(1)	4.00(1)	3.73(1)	3.73(1)

An analysis of the data in Table 34 revealed that the extension method field visit was the most preferred method during land preparation stage with first rank in all the periods. Individual contact was preferred second during T3, T4 and T5 and the method 'group discussion' was preferred as fourth during the initial phase of group management approach and was later pushed down to lower rank. Farmers' training which was preferred as third during the middle periods of group management, was ranked as fourth during the later stage of group management. From the above analysis, it could be stated that field visit was the most preferred method during land preparation. Individual contact method, eventhough started as third in the initial phase of group management, it was assigned the second rank during the later stages of group management approach. Group discussion and farmers' training were also preferred as third and fourth in the later stages of group management.

4.5.3. Preference of extension methods for the practice 'transplanting'.

Table - 35

Sl.No.	Extention method	Mean score				
		T1	T2	T3	T4	T5
i)	Individual contact	1.72(3)	2.05(3)	2.58(2)	2.79(2)	2.79(2)
ii)	Group discussion	1.32(4)	2.23(2)	1.38(4)	2.20(3)	2.20(3)
iii)	Farmers' training	3.17(2)	1.88(4)	2.02(3)	1.26(4)	1.26(4)
iv)	Field visit	3.73(1)	3.82(1)	4.00(1)	3.73(1)	3.73(1)

From the data in Table 35, it could be confirmed that out of the four extension methods tried during the group management approach from T1 - T5, field visit was considered as the most preferred extension method, followed by individual contact which was given second preference, group discussion and farmers' training were preferred 3rd and 4th respectively for the above operation.

Individual contact was the second preferred method during T3, T4 and T5. Group discussion was given the mixed rankings during the five periods. Similar is the case of farmers' training also. From the above it could be concluded that the most preferred extension methods during the transplanting operation were field visit, individual contact, group discussion and farmers' training, in that order.

Preference of extension methods for the practice
manures and manuring

Tabel - 36

Sl.No.	Extension method	Mean score				
		T1	T2	T3	T4	T5
i)	Individual contact	2.61(2)	2.44(3)	3.23(1)	2.88(2)	2.88(2)
ii)	Group discussion	2.35(3)	2.47(2)	2.08(4)	2.00(3)	2.00(3)
iii)	Farmers' training	3.85(1)	1.61(4)	2.23(3)	1.14(4)	1.14(4)
iv)	Field visit	1.17(4)	3.47(1)	2.44(2)	3.97(1)	3.97(1)

From the data in table 36 it could be visualised that here also the method field visit was the best preferred extension method except in T1 (4th preference) and T3 (2nd preference). For the 2nd preference; the method individual contact was considered even though it had received some mixed preference during the earlier periods of group management approach. Based on the preference over the earlier periods of group management approach, the third and fourth ranks were allotted to group discussion and farmers' training, respectively.

Preference of extension methods for the practice plant protection

Table - 37

Sl.No.	Extention method	Mean score				
		T1	T2	T3	T4	T5
i)	Individual contact	2.91(2)	2.5(2)	3.44(1)	2.88(2)	2.88(2)
ii)	Group discussion	2.23(3)	2.38(3)	2.08(4)	2.05(3)	2.05(3)
iii)	Farmers' training	3.64(1)	1.79(4)	2.11(3)	1.08(4)	1.08(4)
iv)	Field visit	1.14(4)	3.32(1)	2.35(2)	3.97(1)	3.97(1)

It could be assessed from the data in table 37 that, considering the four extension methods throughout group management approach period for the plant protection operation, field visit was preferred most, eventhough it was given only the fourth preference during T1 and second preference during T3. Individual contact was preferred second from the earlier periods to the later periods of group management approach except in T3 where it was preferred first. While the third and fourth preferences were accorded to group discussion and farmers' training respectively. In the case of group discussion, the third choice was continuous except during T3 period. In the case of farmers' training, the fourth preference was maintained during T2, T4 and T5 periods of group management approach, with first preference during T1 and third preference during T3.

DISCUSSION

CHAPTER-5
DISCUSSION

The salient results of the study are discussed in this Chapter under the following heads:-

- 5.1. Socio-psychological and economic variables of the respondents
- 5.2. Reasons for failure of group approaches.
- 5.3. Constraints in increasing rice production.
- 5.4. Impact of group management approach.
- 5.5. Preference of extension methods.
- 5.6. Strategic model of the study.

5.1. Socio-Psychological and economic variables of the respondents.

As indicated in the Chapter dealing with the methodology, the analysis of the Socio-Psychological and economic characters of the respondents was done based on the bench mark survey to serve as a guideline for arriving at the lacuna in the rice production and to design suitable approaches for increasing the productivity of rice in the area. The results of the analysis of the socio-psychological and economic characters of the respondents are discussed in the light of the above.

5.1.1. Socio-Psychological characters of farmers.

The age-wise analysis showed that the majority of the respondents in the study-area were middle aged with none from the young group. This is indicative of the potentiality of the group under study area, in terms of their considerable experience in rice cultivation, understanding the problem posed by the present day cultivation and to make effective decisions and for active participation. Hence it was assumed that the group of respondents would be amenable to form an organic group.

As far as their caste was concerned it was observed that the respondents belonged to the same caste which otherwise indicates the prevalence of homogeneity among the respondents. This was considered as a most critical factor which could help in transforming the isolated farmers into effective functional and harmonious group and to prompt group activities.

The occupation-wise break-up of the respondents showed that nearly half the proportion of the respondents were agricultural labourers and for 1/3rd of the respondents, farming was the primary occupation. Even though the remaining respondents were engaged in other occupational activities, they had not completely parted with farming. This type of occupational structure indicated that there was a common binding force in terms of farming, availability of

sufficient labour force who were hitherto disorganised and got only random employment. The common factor of farming and availability of labour could be taken advantage of, if the farming was done together utilising the available labour on symbiotic basis.

The high literacy level of the respondents served as good indicator for venturing on an innovative programme like group management approach in the study area. Education is a life blood in any developmental activity as it helps people understand and practice the ideas preached. In the study, nearly 85 per cent of the respondents were literate which could be effectively taken advantage of, for formulating new programmes like group management with their consciousness to boost participation in rice production.

The family size in the study area revealed that majority of the farm families had more than five members which means lot of mouth to be fed and income mobilization to fulfil their minimum needs. The situation of this nature falls under the Maslow's motivational hierarchy of 'need for security'. In the light of the said situation it is quite reasonable to anticipate that there will be good reception and co-operation from the respondents' side for an intervention in the existing practice of individual farming with an alternate approach to venture with.

The use of information sources by the respondents was not found to be appreciable which means that respondents were ignorant of latest innovations of rice cultivation for higher yields. Situation of this type certainly warranted an effective approach for feeding necessary information to the farming community from time to time to facilitate better comprehension of innovations.

Similarly, the distribution patterns of respondents in social participation, cosmopolitaness and extension orientation were not different from the above which hampered very much the information needed for rice cultivation for adoption and thereby improving the production and profit margin. A suitable mechanism was very much needed to overcome this state of affairs.

The respondents from the study area did not possess sufficient knowledge on rice cultivation and consequently their adoption of recommended practices also left much to be desired. A complete overhauling of the situation, very much called for a system wherein knowledge on rice cultivation was inculcated and thereby the adoption rate of the respondents could be enhanced. The attitude of respondents towards group management was at a low web. This may be due to the lack of awareness on the part of the respondents about the merits of the group management approach. The low management orientation of the respondents of the study area

also signalled the lack of the much crucial management factor in operating their farms. The status of group cohesion also followed the same pattern warranting a system to bring about group cohesion among the respondents.

As far as the economic factors are concerned they also exposed the resource-base of respondents. This is very much evident from the meagre land holding status which would permit farmers using labour-cum-cost saving implements or risking high cost technologies for rice cultivation. The respondents also had to depend very much on hired machineries/implements for their day-to-day farm operations. All these factors unmistakably bring out the need for pooling the resources available in the area for rice cultivation beyond the frontiers of fragmentation and sub-division and the boundaries maintained in each of the farmer's field.

In the case of annual income derived from rice cultivation, the picture was rather baffling. It is true that with poor resource-base coupled with the scarcity of information package to benefit the respondents in their cultivation, attaining higher production and returns will be a day dream for the respondents. The curse of the above factors got extended to the area of cost of cultivation which was found to be high as evident from the fact that the majority of the respondents fell in medium to high category of cost in almost all important operations of rice

viz. manures and manuring, plant protection, weeding and harvesing.

The results on the socio-psychological and economic factors brought to the limelight the fact that there existed a near impossibility to hike the rice production and profit with the existing resource-base and practices. An altogether revamping of the situation becomes imperative. Again, considering the factors analysed, the alternative approach which could possibly cope up with the lacuna identified on the one hand and toning up the favourable conditions viz. labour force, contiguous area of fields, homogeneity of the famers on the other hand would be nothing less than organising respondents into a group for collectively undertaking their farm operations.

The group management procedure developed in this study was formulated in the light of the discussion presented and as described in the Chapter on Methodology.

5.2. Reasons for the failure of earlier group approaches.

The results of the reasons for the failure of earlier group approaches revealed that, among the 31 reasons identified, 12 reasons were found to be more important based on the mean score and coefficient of variation worked out.

On closer scrutiny of the reasons, these reasons could be broadly categorised into those as lack of leadership, knowledge, guidance and favourable policy by the government. All these reasons pointed towards the lacuna in the earlier group approaches carried out by various development agencies for farm development. The problem of lack of sustained group leadership would have stemmed from the failure in creating an awareness and knowledge about the importance of group approach. On the whole the earlier attempts lacked a system of a methodology in which extension machinery failed to realise the importance of sustained group leadership and the need for proper guidance on the same. This is in accordance with the findings of an evaluatory study conducted by the Kerala State Planning Board (1977).

The analysed reasons were suggestive of a group approach system backed strongly by organic leadership within the farming community for which the elements of creating awareness, developing knowledge and providing guidance would have to be looked into. As a corollary to it, major thrust was given in the group management approach developed for the study, for the development of a group leadership, awareness and knowledge about the importance of group approach through personal contact and group meetings, intensive guidance by the Researcher and by forming farmers association in the study area.

5.3 Constraints in increasing rice production

While analysing the constraints for increasing rice production, 71 constraints were presented in the Chapter on results. Of these, 32 were found to be important based on their mean scores. Based on the commonness of these 32 reasons, they could be categorised as follows for discussion purpose. The nature of content reflected on the constraints enlisted surfaced the areas of non-availability of inputs, high cost of inputs, incidence of pest and diseases, labour-oriented problems, marketing, and lack of technical advice. Non-availability of inputs was reported as a constraint for rice production by Pal (1975), Rajagopalan(1975), Sharma(1975) and Tripathy *et al.* (1982). The high cost of inputs as a constraint reported in the study is in line with the findings of Viswanathan (1972), - Singh (1982), Rajasekhar (1984) and Haque(1985). The remaining reasons either reflected the inherent problems of high yielding varieties of rice namely high cost, inadequacy of straw, low price, intensive care or problems due to the absence of community nursery and climatic conditions. Non-availability of inputs would linger on as a constraint as long as it is viewed as obtaining inputs through individual effort. Dealers may not be very much concerned with fulfilling individual needs, which may result in non-availability of a particular input. As long as a dealer is skeptical about bulk demand, it would be risky for them in procuring the

same. A bulk demand will ensure bold procurement of input by the dealers. Making bulk demand depend very much on the co-operation of the farmers or the group cohesion which binds the respondents together. The high cost of inputs as perceived by the respondents is the function of not only the absolute value of the inputs, but also the allied costs namely loading, unloading, transportation, time spent etc. on it. Allied costs will be always high when viewed individually but considerable reduction in that could be effected by doing the purchase on group basis. The problem of pests and diseases persists in rice cultivation mainly because plant protection operations, are done individually over spread out periods. A simultaneous effort in plant protection would substantially reduce pest and diseases problem which calls for a group approach. The labour related problems could be solved when there is exchange of labourers among the farmers on symbiotic basis. The element of symbiosis rest very much on mutual understanding and dependence among the farmers which could be inculcated only when famers feel as a single entity. Similarly, the problem of marketing and drainage are mainly due to the non-co-operation and individualistic effort of the farmers. Lack of technical advice is ofcourse, a problem of external nature. The external intervention will be there only when a need is expressed in a wider spectrum.

Hence it could be epitomised that most of the problems emerged because rice cultivation was carried out by small and marginal farmers on an individual basis and the possible solution could be the group management approach. The group management approach was introduced among the respondents as detailed earlier and the results of the study in this connection are discussed in the pages that follow.

5.4. Impact of group management approach.

5.4.1. Socio-psychological variables.

5.4.1.1. Use of information sources.

The distribution pattern as well as sum of ranks of Friedman's analysis on use of information sources revealed that there was significant increase in the use of information sources by the respondents not only just after the exposure of the group to group management approach but also there was gradual improvement thereafter.

The respondents were provided with crucial and basic informations regarding rice cultivation through various extension methods adopted in the group management process and this developed an urge among respondents for additional information to meet the requirements of various scientific cultivation practices. This could be the probable reason for the increased use of information sources by the respondents over the five periods under the study.

5.4.1.2. Adoption of package of practices.

The effect of group management approach on the adoption behaviour of the respondents has clearly brought to light that group management approach would not only merely influence favourably but also could effect a complete change in this respect within a short span of two years. Prior to the exposure to group management approach, the respondents' adoption rate was low in view of lack of knowledge as well as other adoption constraints namely high cost, inadequate supply of inputs, pest and disease incidence etc. Group management approach not only provided the necessary knowledge about scientific rice cultivation practices but helped them in successfully encountering these constraints. Having realised the benefits of adoption of the practices during 1st year of group management approach (T2) the respondents would have been convinced fully and they started adopting all the important practices thereafter. The finding is in line with that of Nehru et al (1988) and Desai (1989) who reported that group management had enriched the adoption behaviour of farmers.

5.4.1.3. Social Participation.

Social participation of the respondents was on the increasing spree due to their exposure to group management approach implemented in the study area as evident from the

improvement in the sum of ranks over the five periods. The basic theme behind group management approach is bringing about social action for the economic and biological problem faced by the farmers in paddy cultivation. Furthermore, group management approach has an inbuilt phenomenon of forming group organisation in which the farmers were having active participation. Hence there were enough reasons for the improvement in the behaviour of social participation by the respondents in the study.

5.4.4. Knowledge about high yielding varieties of rice.

It has been very evidently brought out that the knowledge of the respondents on high yielding varieties of rice improved tremendously due to their exposure to group management approach in rice cultivation. Group management approach in its procedure envisages various programmes for educating the farmers in the scientific aspects of rice cultivation. The constant and intensive educational programmes would have enriched the farmers with necessary knowledge required for scientific rice cultivation. Probably this would have been the reason for knowledge improvement due to group management approach. The finding of Amutham ^{et al} (1981) who reported that due to the impact of community nutrition efforts there was a great improvement in the nutritional knowledge and dietary practices of the home makers, confirmed the findings of this study.

5.4.5. Cosmopolitaness

The results of the study relating to cosmopolitaness revealed that group management approach influenced the respondents to develop cosmopolitaness gradually from season to season. But from the data it could be observed that upto the T3 crop season, the progress was only nominal, and that it was confined to medium level of improvement in the cosmopolitaness of the respondents. Only after T3 crop season, the improvement was very pronounced. The intervention of group management approach brought in lot of changes in their traditional way of life as evident from the results obtained in the study such as social participation, extension orientation etc. The change occurring in the components of a system will have chain reaction in other sub systems complimenting and supplementing and arriving at an equilibrium. As an off shoot of this, the change occurring in the characters of attitude, knowledge, social participation, yield, and income had reaction on the cosmopolitaness of the respondents also. This may be the reason why the cosmopolitaness of the respondents had a change belatedly. This drew support from the findings of Vijayaraghavan and Somasundaram (1979).

5.4.6. Extension Orientation.

From the results under extension orientation it could be seen that the percentage of the respondents of high extension orientation was seen increasing over the five periods under study and a great leap was observed in the sum of ranks over the period of group management approach. This result indicated that massive extension approaches developed under the supervision of the Researcher, would have inculcated a favourable feeling among the respondents about extension agencies and their activities which reflected in the improvement in their extension orientation. From the above results it could be concluded that group management efforts helped the farmers to develop their extension orientation in research study area. The findings of ^{and Chennegowda} Nataraju(1986), Suresh (1987) and Reddy and Reddy(1988) that there was a significant relationship between extension orientation and adoption complemented the findings of the present study.

5.4.7. Management Orientation.

From the results obtained under management orientation, it could be noted that this variable was not much influenced by the group management efforts initially but gradually improved thereafter. The management components formed a part in the package of group management approach. The

concept of scientific management was new to them, hence it took some time for the respondents to relish the same and apply it in real situation. This may be the reason for the belated improvement in this character. The improved management orientation would have played a critical role in the rice productivity improvement also. The finding of the study draw support from the study of Anatharaman (1991) that farmers of high productivity area of Cassava had high managerial efficiency.

5.4.8. Attitude towards group management.

Quite contrary to the previous variable, the results in this context were encouraging in the sense that there was a total and immediate change for the betterment in the attitude of the respondents towards group management. This may be due to the reason that the respondents would have developed confidence in the group management efforts, since they had increased yield when compared to previous crop season. The results of diffusion studies on the components of knowledge, attitude, and practice established that there was cause-effect relationship between attitude and behaviour. Perhaps, it would have been the reason for the observed change in the attitude of the respondents, such interpretation have been stated for this type of relationship by Rogers (1983) and Anatharaman (1991). Further the results of the study draw support from the

findings of Ghosal (1982) who reported that farmers developed positive attitude towards group approach; of Mohanan (1989) that farmers of ela programme expressed positive attitude towards cultivation of paddy in large group, and that of Job (1990) that group management in vegetable cultivation developed self confidence and positive attitude towards group management among farmers.

5.4.9. Group Cohesiveness.

From the results recorded under group cohesiveness it could be inferred that group management efforts had positive impact on the cohesive nature of the farmer participants. From the results recorded, the respondents were seen shifted from low group cohesiveness at the first instance to medium and high group cohesiveness gradually. It could be concluded that group management efforts had created tremendous impact on the respondents to have better group cohesiveness. The farmers after experiencing the additional benefits accrued through group management had realised the fact that "United we stand, divided we fall". Probably this would have bound themselves to strong group and hence this type of result with regard to group cohesion. The finding of this study got supportive evidence from the finding of George (1969), that group action had inculcated a sense of co-operation among farmers to have joint cultivation of rice.

5.4.10 Economic variables.

5.4.10.1 Yield obtained.

From the results recorded about the yield as influenced by group management efforts, it could be observed that the yield increase was very rapid from T1 to T5 crop seasons. The analysis of variance confirmed that there was significant increase in yield due to group management approach. The C.D. value indicated that while the yields during group management period (T2 to T5) were significantly higher than that prior to the group management approach period, the yield during T3 was significantly lesser than other group management approach periods but higher than T1. Consequent to the adoption of improved practices as per the recommendations for rice cultivation taught through various extension teaching programmes of group management approach, yield had increased. There cannot be any difference in opinion that yield would be increased when recommended practices are adopted. Earlier results on adoption of practices had shown that adoption behaviour of farmers had increased tremendously due to group management approach. The yield reduction which took place during T3 could be attributed to the adverse climatic condition during that period. Nevertheless, the yield during this period was higher than that of the bench mark level. It may be pointed out here that almost all the earlier studies had revealed

that (Schiller 1959, Moczarski, 1973; Venketaramaiah et al 1989; Hali, 1990; and Vijayachandran, 1990) yield had increased due to group farming or group approach in the cultivation of crops.

5.4.10.2. Income from rice cultivation.

The results obtained in this regard represent a general trend that the respondents had gained more income gradually. The specific observation to be noted here is that no respondent had increased in percentage under high income in all the crop seasons, in spite of gradual increase in yield from season to season. Perhaps this may be due to the reason that the income of the farmer covers the income from other agricultural enterprises including the income from rice cultivation also.

Even within the medium annual income from T1 period to T5 period there was a gradual improvement noticed from T1 to T4 crop seasons. When it comes to T5 crop season, the percentage of respondents in the medium income groups was slightly reduced. It may be inferred that the probable reason for the reduction of income might be that T5 crop season was carried as a follow up crop in the absence of the Researcher. From this discussion it could be concluded that the presence of a potential leadership is a must to co-ordinate the group activity in the fullest effective manner.

If this lacuna is taken care, the chances of getting increased income from rice cultivation under group management are high. From the above it could be concluded that group management had created considerable impact on the income of the respondents. The findings of group approaches organised elsewhere (Rao,1989; Nair,1990; and Mane (1991) also clearly indicated that there was increase in income due to group management approaches.

5.4.11. Cost of cultivation

The results presented in Tables from 22 to 28 and 31 and 32, clearly indicated that there was invariably significant reduction in the cost of various cultivation operations from main field preparation to harvest. The main crux of group management approach is pooling the resources and labour force for a joint venture of agricultural operations. There was symbiotic relationship in exchange of labour among respondents. This would have enhanced the quality and quantity of work, coupled with the cost saved through shared labour, the bulk procurement of inputs namely organic manure, fertilizers, pesticides, etc. would have definitely reduced the input cost. All these factors would have created a cost saving atmosphere in general. It could be concluded that group management approach helped very much in reducing the cost of cultivation. This draws support from the studies of George (1969), Menon (1984) Raghavan

(1987), Nair (1990), and Vijayachandran (1990), who all reported group farming/approach had reduced the cost of cultivation considerably. However, it may be noted that the cost during T5 in the case of main field preparation to harvesting did show slight increase in the cost. This may be attributed to the fact that during T5, group management approach was operated by respondents themselves without the guidance of research worker, hence a slight set back in the first year after the withdrawal of research worker.

5.5. Preference of Extension Methods.

It could be observed from the findings with regard to the preference of extension methods that, field visit had emerged invariably as the most preferred method for all practices under study during pre-exposure as well as post exposure periods. Farmers' training was preferred for the practices during post-exposure but got least preference during post exposure period. Group discussion and individual contact which got least preference during pre-exposure were preferred over 'training' during post-exposure period. This is suggestive of inclusion of field visit as (a method) an integral part of group management approach throughout the programme; training is needed before the start of the programme and importance should be given to

individual contact and group discussion during the course of operation of group management approach. Field visit offers lot of scope for the farmers to get educated in real field situation and since education is a continuous process, the respondents preferred this throughout the programme. Farmers' training helped the respondents to gain basic knowledge on scientific aspects of crop cultivation, hence it was preferred during the pre-exposure period. Once the basic knowledge acquisition has happened, this method loses its significance and hence, it is natural that the same was not preferred further. Unlike 'training', group discussion and individual contacts provide farmers with the possibilities of clearing their doubt based on their experience, and hence these methods were preferred during the later part of the programme. The results of the study relating to the preferences of the respondents in respect of the extension teaching methods succinctly point out to the suitability of the use of combination of extension methods appropriate to the type of farmers on various occasions.

5.6. SUGGESTED STRATEGIC MODEL FOR GROUP MANAGEMENT

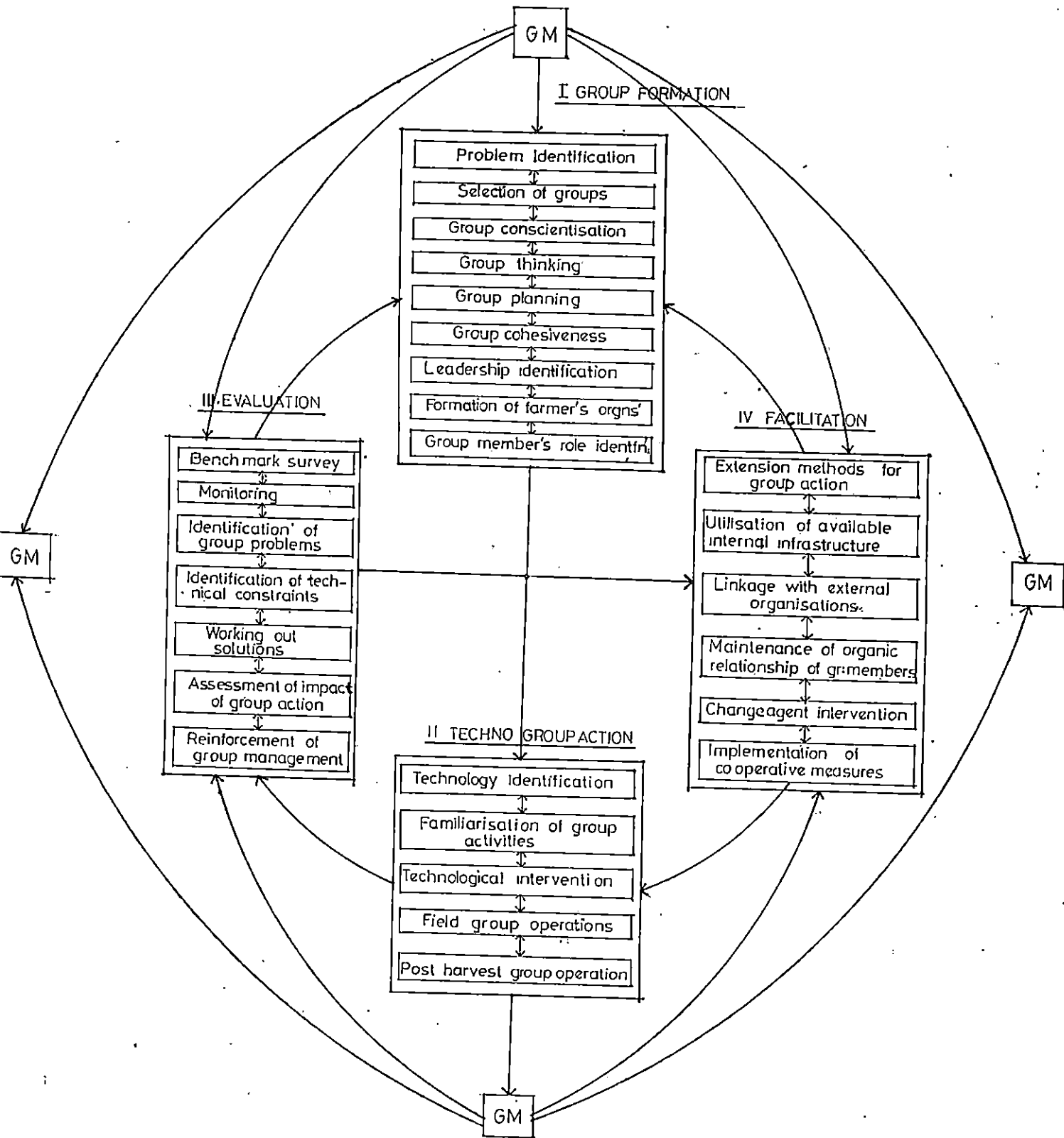
The strategy suggested based on the empirical findings and the experiences of the Researcher is presented in the figure VI. The model depicted has a circular periphery entailing the delineated segments internally. The peripheral circle represents the group management as a system with its internal segments connected with arrows representing subsystems. The subsystems involved are:

- I. Group formation.
- II. Techno group action.
- III. Evaluation.
- IV. Facilitation.

The directions of the arrows connecting the subsystems indicate the linkage path among the subsystems within the mega system.

- I. Group formation
 - i) Consensus problem identification.
 - ii) Selection of groups.
 - iii) Group conscientisation.
 - iv) Group thinking.
 - v) Group planning.

Strategic Model suggested for
Group management
(Fig-VI)



- vi) Group cohesiveness.
- vii) Leadership identification.
- viii) Formation of farmer's organisations.
- ix) Group members' role identification.

II. Techno-group action:

- i) Technology identification.
- ii) Familiarisation of group activities.
- iii) Technological intervention.
- iv) Field group operation.
- v) Post harvest group operations.

III. Evaluation:

- i) Bench mark survey.
- ii) Monitoring.
- iii) Identification of group problems.
- iv) Identification of technical constraints.
- v) Working out solutions.
- vi) Assessment of impact of group action.
- vii) Reinforcement on group management.

IV. Facilitation:

- i) Extension methods for group action.
- ii) Utilisation of available internal infrastructure.

- iii) Linkage with external organisations.
- iv) Maintenance of organic relationship of group members.
- v) Change agent intervention.
- vi) Implementation of co-operative measures.

The first subsystem is group formation, which is the rock foundation for the group management approach and hence this forms the first and foremost subsystem. The essential activities identified to make this subsystem functional are:

- i) Consensus problem identification,
- ii) Selection of group,
- iii) Group conscientisation,
- iv) Group thinking,
- v) Group planning,
- vi) Group cohesiveness,
- vii) Leadership identification,
- viii) Formation of farmer's groups,
- ix) Group members role identification.

All the above activities follow mostly a sequential order.

Another subsystem, subsequent to the group formation is 'techno group action' which encompasses activities with regard to the adoption of improved practices as well as post harvest operations. The activities are:

- i) Technology identification
- ii) Familiarisation of group activities

- iii) Technological intervention.
- iv) Field group operation
- v) Post harvest group operations.

The other two subsystems namely evaluation and facilitation are the ~~guiding~~ guiding forces and facilitating factors for the achievement of group formation as well as techno group actions.

The activities shown under evaluation namely;

- i) Bench mark survey
- ii) Monitoring
- iii) Identification of group problems.
- iv) Identification of technical constraints.
- v) Working out solutions.
- vi) Assessment of impact of group action and
- vii) Reinforcement of group management.

The assessment of various activities of group formation and techno group action go in the anticipated direction, as well as helps for the overall measurement of the success of the programme.

The activities under facilitation are namely:

- i) Extension methods for group action.
- ii) Utilisation of available internal infrastructure.
- iii) Linkage with external organisations.
- iv) Maintenance of organic relationship of group members.
- v) Change agent interventions and

vi) Implementation of co-operative measures.

Based on the evaluation, suitable facilitating actions are shown in the facilitation segment which are to be taken to alter and correct the group process.



SUMMARY

CHAPTER-6
SUMMARY

Rice is the staple food crop of Kerala. As a food crop, it occupies 87 percent of the area and accounts for 98 percent of production of food grains in Kerala. A comparison of growth rates of production of food-grains particularly rice and of population in Kerala indicates that while the growth rate of population is 1.75, the growth rate of food-grains is only 0.21 as against the All India figures of 2.32 and 2.24 respectively. This leaves a deficit of about 60 per cent in rice requirements of the state which is being managed by rice imports from other states at present. The coverage of high yielding varieties of rice is only about 30 percent and the increase in yield due to high yielding varieties is also only 230-350 Kgs/ha, which is quite low considering the experimental yield of 5-6 tonnes/ha as against 2 to 2.5 tonnes/ha in the case of conventional varieties. The average rice yield in the state remains at 1.88 tonnes/ha only and this points out to the wide yield gap and the immediate task in this regard is to make available appropriate technologies and to facilitate the farmers to adopt these technologies.

The successive governments in Kerala have introduced many measures to augment rice production in the state. In spite of the many programmes like Intensive Agricultural

District Programme, Intensive Agricultural Area Programme, High Yielding Varieties Programme, Intensive Paddy Development Programme and TV Programme introduced in Kerala, none of them had made any impact on the farmers, since they could not either increase the rice productivity or decrease the cost of production. This is hurdled by the problem of the technological gap existing among the farmers. Limited farm size and the itinerant risk in adopting innovations and the steep increase in the labour cost have all made the survival of individual small peasant at economic level, rather impossible.

To overcome the above hurdles in increasing rice production, with cost effective strategies, several extension approaches have been launched in the state. One of the approaches which has given promising results earlier has been the group farming approach. Considering the potential of this approach, and the likely expansion of the programme on a wider scale for other crop enterprises also, it was reckoned as important that this approach has to be further refined considering the various parameters involved in it. With this aim in mind, the present study is undertaken with the following objectives.

6.1. Objectives

1. To analyse the reasons for success or failure of earlier group approaches in rice production in Kerala.
2. To analyse the constraints in increasing rice production in a selected farming community where group approach is not followed and to analyse the reasons therein for not following group approach.
3. To develop and implement an action programme in the farming community to overcome the identified constraints through group management.
4. To monitor and evaluate the impact of the action programme on the agro-socio-economic conditions of the farmers.

6.2. Methodology

The study was undertaken in Trivandrum District purposively. From among the list of villages in Trivandrum district, where rice forms the major part of the cropping pattern but with low productivity, Thiruvallam village was selected. In the selected village, there were 7 elas, out of which Punjakari ela was selected at random. Thirty four farmers were included as respondents for the study since they belonged to a contiguous rice area of 10 acres. They represented the typical rice growing farmers of the tract.

The research design followed in this action research study was that of 'before and after the experiment' type, in which the experiment had the respondent's participation in planning, implementing and evaluation with an action research component of utilising the results of the study for further refinement of the group management approach through continuous monitoring and evaluation of the entire programme. A pilot study was conducted and on the basis of that a set of socio-psychological and economic variables were identified to assess the profile of the respondents and to ascertain the impact of the action-research-programme. The socio psychological variables thus selected were age, education, family-size, information source use, social participation, cosmopolitaness, extension orientation, management orientation, attitude towards group management, knowledge about high yielding varieties of rice, adoption of package of practices, group cohesiveness, caste, and occupation. The economical variables included for the study were income, yield obtained, and cost of cultivation. These variables were measured using appropriate procedures.

The reasons for not following group approach were collected from the study area followed by the identification of constraints in increasing rice production. A suitable technology package was identified in consultation with the experts to overcome the selected constraints. Based on the

above technology package, a suitable action programme was developed and introduced in the study area.

To convince the farmers about the components of the action programme, four extension methods namely, individual contact, group discussion, farmers' training camp and field visit were used and their preferences as felt by the respondents were also measured, for each selected practices. A farmers' association was formed on democratic lines and the action programme was implemented by the farmers' association under the technological supervision of the Researcher during the experimental periods of the research during three experimental crop seasons and one follow up crop season, in which the research worker's intervention was withdrawn. Changes in the action programme were also made in the subsequent experimental crop seasons considering the pitfalls during the first experimental crop season.

The impact of the action programme on the above socio-psychological and economic variables was closely monitored and evaluated. The study was conducted during 1988-1990 period. The data were collected at the required times using structured, pretested schedules. The statistical tools used were simple percentage, means, coefficient of variation, analysis of variance and Friedman's two way analysis of variance.

The Salient findings are summarised as follows:

Reasons for the failure of earlier group approaches

The most important reasons for the failure of earlier group approaches in the rank order were - 'the political system does not permit', 'possible only when there is continuous leadership', 'group approach dies out when external leadership is withdrawn', 'no knowledge about group management', 'farmers are not co-operative', 'heterogenous group members are more', 'no proper machinery to popularise group management', etc.

Constraints in increasing rice production

The nature of content reflected in the results on the constraints in increasing rice production were 'non availability of inputs', 'high cost of inputs', 'incidence of pests and diseases', 'labour related problems', 'marketing', 'drainage' and 'lack of technical advice'.

Impact of group management approach.

Socio-psychological variables.

Use of information sources:

The results revealed that, the use of various information sources had improved due to the exposure to and adoption of group management approach in rice cultivation. The chi-square value of Friedman's analysis also indicated

that there was a significant change towards the favourable side in the use of information sources by the respondents exposed to group management approach.

Adoption of package of practices :

The changes brought in the matter of adoption of package of practices over the period were fast and complete. The chi-square value (108.8) of Friedman's analysis revealed that the change brought in the adoption of package of practices through group management approach was significant.

Social participation:

The summary of results revealed that even though there were more than 90 percent of respondents falling in the low category of social participation during pre-exposure period, there was decreasing trend in the proportion of respondents in the low category over the treatment periods indicating that group management approach had brought in favourable change in the character of social participation of the farmers.

Knowledge about high yielding varieties of rice:

While all the respondents have pooled together in the low knowledge group during pre-exposure, in the post exposure season of T2, T3, T4 and T5 there occurred a marked

improvement. It could be further confirmed that from the significant chi-square value (129.91) that group management approach had definitely played a vital role in enhancing the knowledge level of respondents.

Extension orientation:

There was considerable improvement in the extension orientation of the T4 and T5 periods. The significant chi-square value worked out in 'Friedman's analysis confirmed that group management approach had brought in a significant change in the orientation of respondents towards extension.

Management orientation:

The sum of ranks derived was indicative of the improvement in the management orientation of the respondents from T3 period onwards.

The changes brought on the management-orientation of the respondents as a result of introduction of the group management approach were significant.

Attitude towards group management:

From the study it could be summarised that, the intensity of attitudinal change in the case of group management was enormous, fast and total. The significantly high chi-square value of Friedman's analysis revealed that

the group management approach had influenced the attitude of the respondents towards group management very much favourably.

Group Cohesiveness:

In the case of group cohesiveness also there was an increasing trend noticed from T1 to T5 periods due to group management efforts. The significant chi-square value also was indicative of the positive impact of group management approach towards group cohesiveness.

Economic variables .

Yield obtained by the respondents:

The results of the study indicated that, there was significant positive relationship between yield obtained by the respondents and group management approach.

Income :

Group management approach had significant positive impact on the income of the respondents, over the five periods studied.

Cost of cultivation:

There was marked reduction in the cost of cultivation incurred by the respondents for all the operations except harvesting over the five periods studied. In the case of weeding and harvesting operation, there were slight

increases in the cost of cultivation during T5 period, (during which the Researcher's intervention was withdrawn) when compared to the previous periods of the experiment.

Preference of Extension methods :

Field visit had emerged as the most preferred method for all the practices and in all the periods invariably. Farmers' training, group discussion, and individual contact methods were found to be preferred next best in their sequence during the post exposure period particularly.

Implications of the study

The results relating to the reasons for the failure of earlier group approaches implied that to have successful group management efforts, the presence of political will, dynamic leadership, linkage between different development departments, conviction on the part of participating farmers and a strong service, supply and marketing infrastructure is absolutely inevitable.

The results of group management approach, in rice cultivation are a pointer to the immense potentials of the group management approach to other areas of the state and the country including other crops besides rice.

The encouraging trend observed in the study in terms of improvement in the impact variables such as information source use, social participation, cosmopolitaness, extension orientation, management orientation, knowledge about high yielding varieties of rice, adoption of package of practices, attitude towards group management, and group cohesiveness bring to focus the enormous possibilities of improving the socio-psychological characteristics of the farmers and to facilitate harmonious social living through group management approaches in agricultural avocations.

In the obtaining situations of decline and stagnation of productivity of major crops of Kerala in particular and

the country in general, could be set right towards the path of progress through group management on the results of the study implied.

While admitting the prevalence of heterogeneity among the farmers, efforts should be made to organise farmers into homogeneous groups to the extent possible, since the results of group management approach in the present study have demonstrated without doubt the significance of groups organised on the basis of homogeneity in certain characteristics of the farmers.

The study revealed that the yield of rice was increasing and the cost of cultivation decreasing progressively during T2, T3 and T4 periods of the experiment, compared to the pre-exposure period. It was also observed that the performance in terms of yield and cost of cultivation during the follow up period (T5), when the intervention of the Researcher withdrawn, was not up to the expectation. This calls for the development of dynamic and sustainable leadership among the farmers for fostering group management approach on a continuous basis.

It was found in the study that, out of the seven cultivation practices considered, for working out the cost of cultivation over the five periods, two package of practices weeding and harvesting did not account for

any appreciable reduction in the cost of cultivation due to group management approach. This result points out to the necessity of selection of limited number of practices which could show remarkable reduction in the cost of cultivation for inclusion in the group management approach. The cardinal principle that "slow and steady wins the race" is implied in this finding.

Field visit as an extension method emerged most preferred among the participant farmers for internalising advanced agricultural technologies. This calls for the increased use of field visit to facilitate farmers to acquire contrived experience required for the adoption of improved agricultural practices.

Suggested areas of future research

1. Controlled experimentation using the double bared model could be introduced as an action research design and its effects evaluated concurrently.
2. Research of similar type with inclusion of more socio-psychological-economic-political and edaphic factors in different social systems: spread over larger geographical situation may be attempted.
3. The impact of group management approach on different dimensions of social living of the farmers may be ascertained on a controlled experimentation basis.
4. The diversity of the impact of group-management approach on different agricultural enterprises including crops, dairying, poultry, piggery, pisciculture, apiculture, sericulture etc. may be assessed in varying social systems.
5. The role of research system, extension-system, input, supplies and services system may be delineated through the action research approach.

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* ORIGINALS NOT SEEN.

APPENDICES

APPENDIX- IReasons for failure of earlier group approaches

Sl. No.	Reasons	Farmer's Mean Score	Rank
1.	Political system does not permit group approach.	3	1
2.	Possible only when there is continuous leadership.	3	1
3.	Group approach dies out when external leadership is withdrawn.	2.97	3
4.	No knowledge about group management	2.95	4
5.	Farmers are not co-operative	2.94	4
6.	Heterogeneous group members are more in villages.	2.92	6
7.	No proper machinery to popularise group management.	2.88	7
8.	Less scope for unanimous decisions	2.83	8
9.	No proper extension guidance	2.80	9
10.	No proper guidance from Government side	2.80	9
11.	Inadequate number of voluntary organisations.	2.78	11
12.	Public involvement is less	2.76	12
13.	No media support for popularising group management.	2.71	13
14.	No associations are formed for this purpose.	2.71	13
15.	There is less scope for leadership development.	2.64	15
16.	Local leadership not favourable	2.64	15
17.	No conclusive evidence about group management.	2.35	17

Sl.No.	Reasons	Farmer's Mean Score.	Rank
18.	More number of absentee landlords	2.21	18
19.	No financial support is given for group management.	2.19	19
20.	Nobody knows about good aspects of group management.	2.16	20
21.	Group management is much expensive	2.11	21
22.	Group management does not have any particular advantage over individual cultivator.	2.07	22
23.	People are less aware of the involvement of the family labour in group management.	2.04	23
24.	Nobody bothers about group management	1.97	24
25.	Farmers are having suspicion and mistrust about group management.	1.88	25
26.	Nobody knows about the retention of landholding as such in group management	1.85	26
27.	Fear of thrusting the group decisions on individual members.	1.62	27
28.	Fear of loosing individual initiative in group approach.	1.61	28
29.	Fear of loosing membership of the land.	1.59	29
30.	Land is not suitable for group management.	1.31	30
31.	Land possession pattern is not suited for group management.	1.28	31

APPENDIX IIConstraints in increasing rice production

Sl.No.	Constraints in rice production	Mean score
1.	Non-availability of quality seeds	3
2.	Non-availability of dolomite, lime etc.	3
3.	High cost of soil amendment	3
4.	Non-availability of plant protection equipment	3
5.	High cost of pesticides and fungicides	3
6.	Non-availability of recommended pesticides and fungicides.	3
7.	Hand weeding highly expensive	3
8.	Unavailability of labourers in time for weeding	3
9.	Lack of financial assistance	3
10.	Procedural delay in getting financial assistance	3
11.	Lack of stabilised market	3
12.	severe incidence of diseases	3
13.	High cost of cultivation of High yielding varieties of paddy.	3
14.	Large scale conversion of paddy fields	3
15.	High Yielding varieties of paddy require intensive care.	3
16.	Part-time cultivators did not opt for high yielding varieties of paddy.	3
17.	No community nursery	2.97
18.	Inadequate quantity of straw in high yielding variety of paddy.	2.97
19.	High cost of organic manure and fertilizers	2.97
20.	Non-availability of organic manure and fertilizer	2.97
21.	Lack of proper marketing system	2.97
22.	severe incidence of pests	2.97

Sl.No.	Constraints in rice production	Mean score
23.	Delayed and early harvesting due to adverse climate.	2.97
24.	High wage rate for agricultural labourers	2.95
25.	Poor turnover from agricultural labourers	2.95
26.	Water logging	2.95
27.	Lack of drainage	2.95
28.	Low price for high yielding varieties of paddy.	2.95
29.	Lack of technical advice on high yielding varieties of paddy.	2.95
30.	Number of agricultural labourers decreasing day by day.	2.92
31.	Sufficient quantity of seeds not available in time.	2.90
32.	Lack of timely advice on pests and diseases	2.88
33.	Lack of proper Risk management policies	2.76
34.	Water logging in certain areas	2.75
35.	High cost of weedicides	2.54
36.	Lack of knowledge regarding the correct dose of pesticides and fungicides.	2.33
37.	No need based application of pesticides and fungicides.	2.28
38.	Adoption of unscientific management practices.	2.19
39.	Lack of knowledge about water management and their benefits.	2.16
40.	Lack of pests and disease tolerant varieties	2.16
41.	Lack of knowledge about the recommended dose of manures and fertilizers.	2.11

Sl.No.	Constraints in rice production	Mean score
42.	No knowledge about high yielding variety of paddy and their cultivation.	2.11
43.	Lack of knowledge about soil amendments like dolomite and lime.	2.09
44.	Lack of knowledge about the use of fertilizers for different soil types.	2.09
45.	No regular and need based application of fertilizers.	2.08
46.	Lack of high yielding variety suited to different agroclimatic regions.	2.04
47.	Lack of soil testing knowledge and facilities.	2.04
48.	Lack of adoption of improved cultural practices.	2.04
49.	Lack of maintenance of proper records	2.04
50.	Lack of cheap technology for processing.	2.02
51.	Needs constant supervision of agricultural labour.	2.02
52.	Most of the varieties are white kernelled which has less consumer acceptance.	2.00
53.	Lack of cheap technology for post harvest handling of the produce.	2.00
54.	Small and fragmented holdings limit adoption of modern agricultural technology.	2.00
55.	High yielding varieties are more susceptible to pests and diseases.	1.97
56.	Lack of high yielding varieties tolerant to salinity.	1.97

Sl.No.	Constraints in rice production	Mean score
57.	Poor work turnover from agricultural labour	1.97
58.	Iron toxicity is a serious problem	1.97
59.	Lack of knowledge about the losses caused by weeds	1.95
60.	Severe incidence of rodent problems in the fields	1.92
61.	Lack of response for most of the major nutrients due to leaching loss.	1.90
62.	Lack of knowledge about weedicides	1.90
63.	No proper control for certain weeds like salvinia	1.90
64.	Lack of proper water management	1.90
65.	Lack of proper weather forecast for farmers	1.90
66.	Same dose of fertilizers for all high yielding varieties.	1.80
67.	Lack of proper storage facilities	1.54
68.	No proper weeding in time	1.47
69.	Low returns or no returns from high yielding varieties cultivation.	1.42
70.	Sufficient water sources are not available	1.40
71.	Lack of irrigation facilities	1.19

APPENDIX-IIIStatement on attitude of respondents towards
group management with 't' value

Sl.No.	Statements	't' value
1.	Group Management leads to sociability improvement	44.83
2.	Group management makes appropriate technologies applicable	42.75
3.	Group management is not effective when compared to other extension approaches	33.47
4.	Group management leads to reduction in cost of cultivation	29.80
5.	Group management promotes more interaction with scientists	28.50
6.	Group management leads to suitable leadership development	28.50
7.	Input supply will be easy and economical	28.50
8.	Group management promotes more involvement of family labour	26.66
9.	Group management helps in identifying suitable technology	24.91
10.	Due to group management increase in net income is assured	23.38
11.	Due to group management scientific farming facilitated	23.30
12.	Time devoted for work is less in this approach	20.76
13.	Group management promotes national integration	20.29

14.	It brings more organisations and institutions together	20.12
15.	Group management helps to attain more benefits individually	15.65
16.	Group management leads to mismanagement of labour	15.23
17.	Group management does make unviable farm to viable	15.01
18.	Less chances for idling in group management	14.85
19.	Group management is not suited to our condition	12.90
20.	Group management effort leads to higher income	12.27
21.	In group management more chances for farmers -	11.40
21.	To keep away from their work	
22.	Group management leads to co-ordinate between research, extension and input systems	11.37
23.	Group management helps to promote marketing	10.06
24.	Group management is a systematic method for increasing crop production	10.05
25.	Group management promotes future security of the farmers	8.88
26.	Group management helps to economise the post harvest technology	8.20
27.	Group management reduces the burden of farmers	7.01

28.	Without group management, no farmers could solve common problems in this location	5.69
29.	Group management leads to loosing title deed of farmer's land	5.49
30.	Group management helps to promote communal harmony	4.88
31.	Group management provides more labour for the rurally unemployed	3.99
32.	Net income is not assured, in group management	2.99
33.	More chances of differences of opinion among group members	1.44
34.	Group management is the best method for increasing yield	0.00
35.	Group management promotes more interaction with group members	0.00
36.	It solves labour problems effectively	1.48
37.	Consolidation of land holding not possible	2.01
38.	Farmers will not get any identity in group management	7.78
39.	Group management leads to wasteful expenditure	12.46
40.	Group management cannot solve the problems of others than field level problems of farmers	43.03

APPENDIX-IVReasons for not following earlier Group Approaches

<u>SlNo.</u>	<u>Items</u>
1.	No knowledge about Group Management.
2.	Land is not suitable for Group Management
3.	Land possession pattern is not suited for Group Management.
4.	Farmers are not co-operative.
5.	No proper Extension Guidance about Group Management.
6.	No financial support is given for Group management.
7.	No associations are formed for this purpose
8.	No proper guidance from the Government's side.
9.	Nobody knows about the good aspects of Group Management
10.	No conclusive evidence about Group Management.
11.	No proper machinery to popularise Group Management.
12.	Nobody knows about the retention of landholding as such in group management.

13. Inadequate number of Voluntary Organisations.
14. Local leadership not favourable.
15. Farmers are having suspicion and mistrust about Group management
16. There is less scope for leadership development.
17. Present political system does not permit Group Management.
18. Nobody bothers about Group effort.
19. Heterogeneous group members are more in the villages.
20. Group management is much expensive.
21. Less scope for unanimous decisions.
22. More number of absentee landlords.
23. No media support for popularising Group management.
24. People are less aware of the involvement of the family labour in group management.
25. Public involvement is less.
26. Fear of loosing individual initiative in group approach.
27. Fear of loosing ownership of the land.
28. Fear of thrusting the group's decisions on individual members.

29. Group management does not have any particular advantage over individual cultivator.
30. Group management approach dies out when external leadership is withdrawn.
31. Group management approach is possible only when there is continuous leadership for the group.
32. Any other - specify.

APPENDIX - VConstraints in increasing Rice yield

Sl. No.	Item
1	2

1. No knowledge about H.Y.V, of paddy & their cultivation.
2. Lack of technical advice about H,Y,V and their cultivation.
3. Non availability of quality seeds and seedlings.
4. Lack of H.Y.V. suited to different agroclimatic regions.
5. Sufficient quantity of seeds not available in time.
6. No community nursery.
7. Lack of pest & disease tolerant varieties.
8. H.Y.V. are more susceptible to pests & diseases.

9. Inadequate quantity of straw in H.Y.V
10. Lack of H.Y.V. tolerant to salinity
11. Lack of knowledge about soil amendments like dolomite, lime.
12. Non availability of above soil amendments in time
13. High cost of above soil amendments.
14. High cost of organic manures & fertilizers.
15. Lack of knowledge about the recommended dose of manures & fertilizers
16. Unavailability of Organic manures and fertilizers in time.
17. No regular & need based application of fertilizers.
18. Same dose of fertilizers for all H.Y.V.
19. Lack of response for most of the major nutrients due to leaching loss.
20. Lack of soil testing knowledge and facilities.
21. Lack of knowledge about the use of fertilisers for different soil types.
22. Non availability of plant protection equipments in time.

23. High cost of pesticides and fungicides.
24. Lack of knowledge regarding the correct dose of pesticides and fungicides.
25. No need based application of pesticides and fungicides.
26. Non availability of recommended pesticides and fungicides in time.
27. Lack of timely advice regarding pest and disease control measures.
28. Lack of knowledge about the losses caused by weeds.
29. No proper weeding in time.
30. Lack of knowledge about weedicides.
31. High cost of weedicides.
32. No proper control for certain weeds like Salvinia.
33. Hand weeding highly expensive.
34. Unavailability of labour in time for weeding and other operations.
35. High wage rates for agrl. labour.
36. Poor wage rates for agrl. labour.
37. Needs constant supervision of agrl. labour.
38. Number of agrl. labourers decreasing year to year.

39. Lack of irrigation facilities.
40. Sufficient water sources are not available.
41. Lack of proper water management.
42. Lack of knowledge about water management & their benefits,
42. Waterlogging in certain ares.
44. Lack of drainage during rainy seasons.
45. Iron toxicity is a serious problem.
46. Lack of proper weather forecast for farmers.
47. Small sized and fragmented holdings limit adoption of modern agrl. technology.
48. Lack of financial assistance when needed.
49. Procedural difficulties in getting financial assistance.
50. Lack of stabilised market.
51. Lack of proper marketing system.
52. Most of the varieties are white kernelled which have less consumer policies
54. Lack of maintenance of proper records.
55. Severe incidence of pests such as stem borer, Brown plant hopper, Gallfly, Ricebug etc.
56. Severe incidence of diseases such as sheath blight, Blast, Bacterial leafblight etc.

57. Severe ~~incidence~~ of rodent problems in the field.
58. Severe incidence of nematode problems in the field
59. Lack of proper storage facilities.
60. Lack of cheap technology for post harvest handling of the produce.
61. Lack of cheap technology for processing.
62. High cost of cultivation of H.V.V.
63. Low returns or no returns from H,Y.V. Cultivation.
64. Low status for rice farmers in the society
65. Large scale conversion of paddy fields to high value upland crops.
66. Lack of adoption of improved cultural practices
67. Delayed and early harvesting due to adverse climatic conditions.
68. Adoption of unscientific management practices.
69. Comparatively low price for H.Y.V. paddy.
70. H.Y.V. require intensive care by the farmers,
71. Part time cultivators does not opt to H.Y.V.

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APPENDIX - VI

KERALA AGRICULTURAL UNIVERSITY

DEPARTMENT OF AGRICULTURAL EXTENSION

COLLEGE OF AGRICULTURE, VELLAYANI - 695 522

"GROUP MANAGEMENT IN RICE PRODUCTION - AN ACTION RESEARCH"

Interview Schedule

Part - 1 (a and b)

III. Agro-Socio economic conditions (Basic Data)

1. Name of the Block/Panchayat.
2. Name of Village.
3. Date of Interview.
4. Name and address of cultivator:

5. Age:
6. Caste/Religion.
7. Socio-economic status:
 - i) Occupation:
Labour/Caste/Occupation/Business/Cultivation/Services
 - ii) Education:
Illiterate/can read only/can read and write/primary/
Middle/High School/Graduate.
 - iii) Family:
Size - Below 5/5 and above.

vi) Land:

- a) Wet acres
 b) Dry acres
 c) Garden acres
 d) Total acres

vii) Use of Information sources :

- a) Radio :
 b) Newspaper :
 c) Farm Magazines :
 d) Agrl. Publication:
 e) Other sources (Specify)

viii) Crops grown (Previous season)

- a) Paddy - 1) Local variety - acres
 11) H,Y,V. (specify) acres
 acres
 b) Coconut acres
 c) Vegetables acres
 d) Other crops (specify) acres

IX. Tenure status:

- a) Tenant cultivators acres
 b) Owner " acres

c) Owner/Tenanant Cultivator acres
 d) Total acres

X. Soil Type:

a) Sandy -
 b) Clay -
 c) Laterite -
 d) Loamy -
 e) Any other (specify)-

XI. Cropping pattern followed:

a) Paddy/Paddy/Paddy
 b) Paddy/Paddy/Vegetables
 c) Any other (Specify)

XII. Existing cultivation practices followed for local variety
 of paddy:

(List out the approved practices being followed by the
 farmers)

1)
 2)
 3)
 4)
 5)
 6)

- 7)
- 8)
- 9)
- 10)

XIII: Existing cultivation practices followed for H.V.V. Paddy.

(List out the package of practices followed for the last season)

Following	Not follow- ing	If not reasons
(1)	(2)	(3)

XIV. Yield obtained (in kg/hectare for the last season)

- a) For paddy - i) Viruppu -
- ii) Mundakan -
- iii) Punja -
- b) Coconut - (Nuts/Hectare)
- c) Banana - (Bunches/Hectare)
- d) Vegetables - (Kg/Ha)
- e) Tapioca - (Kg/Ha)
- f) Any other (Specify) (Kg/Ha)

XV. Operation done jointly with fellow farmers in the locality, if any:

(for the last season)

a)

b)

c)

XVI. Cost of cultivation of various practices followed for the local varieties ^{of Paddy} (in detail for the last season)

Sl.No.	List of Operations	Cost incurred per hectare
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XVII. Cost of cultivation of various package of practices followed for H.V.V. Paddy (in detail for the last season)

Sl.No.	List of package of practices	cost incurred per hectare
--------	------------------------------	------------------------------

XVIII. (a) Marketing facilities available:

Direct	Co-Operative	Any
selling	Society	other

(b) Marketing facilities

made use of by the farmers

XIX. The prevailing market

price of paddy

For Local	For H.Y.V.
Variety (Rs)	(Rs)

XX. Irrigation facilities:

Well irrigated/Rainfed/Any other

XXI Knowledge about High Yielding Variety of Paddyi) Use of High Yielding Variety

a) Which of the following is the high yielding short duration variety?

- (a) Thriveni () (b) Jyothi ()
 (c) IR8 () (d) Mashuri ()
 (e) Any other ()

b) What is the duration of Jyothi ?

- a) 90-95 days () b) 110-125 days ()
 c) 120-125 days () d) 125-145 days ()

c) Which of the following varieties are resistant to blast disease?

- a) Bharathi () b) Jyothi ()
 c) Thriveni () d) IR.8 ()

d) When do you transplant the short duration high yielding variety seedling to the main field

- . 1) When they are 15 days old ()
 2) " " 15-20 days old ()
 3) " " 25-30 days old ()
 4) " " 35-40 " ()

ii) Soil testing

1) What is the purpose of soil testing?

- i) To apply fertilizers on the basis of soil test results ()
- ii) To know the structure of soil ()
- iii) To apply fertilizers & other amendments on the basis of soil test results. ()
- 2) Soil to a depth of inches is collected for testing.
- 1) 6 inches () ii) 10 inches ()
- iii) 15 inches () iv) 20 inches ()
- 3) The optimum time for collecting soil from paddy field for testing is -
- i) During growth stages of paddy ()
- ii) Before starting the land preparation operation ()
- iii) At any time ()
- 4) The minimum quantity of soil to be collected for soil testing is -----
- i) 200 gm () (ii) 500gm () (iii) 1 Kg ()
- iv) 2 Kg ()

iii) Liming

- 1) What is the purpose of liming paddy fields?
- 1) to correct soil acidity ()
- ii) " " alkalinity ()
- iii) to increase waterholding capacity of soil ()
- iv) There is not much use ()

2) How will you apply lime in the paddy fields?

i) entire quantity as basal dose ()

ii) half basal & half, one month after transplanting
()

iii) $\frac{3}{5}$ basal + $\frac{2}{5}$ one month after transplanting ()

iv) Use of the chemical Fertilizers:

i) How will you apply Amn. sulphate/urea to paddy crop?

i) Entire quantity as basal dose ()

ii) Entire quantity as top dressing ()

iii) Split dose in different growth phase ()

2) How will you apply Super phosphate to paddy crops?

i) entire quantity as basal ()

ii) entire quantity as top dressing ()

iii) Split dose in different growth phases ()

3) How will you apply MOP to paddy crop?

i) entire quantity as basal ()

ii) entire quantity as top dressing ()

iii) Split doses at different growth phases ()

v) Use of plant protection chemicals:

i) What is sevin?

i) Fungicide () ii) Weedicide ()

iii) Pesticide () iv) Fertilizer ()

- 2) Please mention the chemical used for the control of rice leaf roller?
- i) Ekalux () ii) Malathion ()
 iii) Rogor () iv) DDT ()
- 3) How much quantity of Ekalux 25 EC is required for an acre of paddy for the control of leaf roller?
- i) 400 ml () ii) 500 ml () iii) 750 ml ()
- 4) Please mention the chemicals used for the control of blast disease of paddy?
- i) Hinosan () ii) Bordeaux mixture ()
 iii) Sevin () iv) Ekalux ()
- 5) How much quantity of Hinosan is required for an acre of paddy for the control of blast?
- i) 200 ml () ii) 500 ml ()
 iii) 750 ml () iv) 1000 ml ()

XXII. Cosmopolitaness:

a) How many times do you visit the nearby town?

2 or more times a week	once a week	once a fortnight	once a month	Never
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4	3	2	1	0
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b) Purpose of visit?

Agricultural	Personal	Entertainment	Others
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2	1	0	-
---	---	---	---

c) Membership in any outside village/town organisation.

Yes/No

1 0

XXIII. Extension Orientation:a) Extension contact:Frequency of meeting Demonstrator/Agri. Officer

i) Two or more times a week (3)

ii) Once a week (2)

iii) Once to thrice a month (1)

iv) Never (0)

b) Extension participation:

Sl.No.	Activities	Whenever conducted	Not attending all the activities whenever conducted	Never
		2	1	0

1. Study tours/Field visits
2. Group meetings.
3. Farmer's Days.
4. Demonstrations.

XXIV. Management Orientation:

What is your opinion about the following statements?

Please state the degree of your agreement or disagreement to each of the statements given below:-

	Agree	Disagree
--	-------	----------

A. Planning Orientation:

- i. Each year one should think afresh about the crops to be cultivated in each type of land.
- ii. It is not necessary to make prior decision about the variety of crops to be cultivated.
- iii. The amount of seed, fertilizers and plant protection chemicals needed for raising a crop should be assessed before cultivation.
- iv. It is not necessary to think ahead of the cost involved in raising a crop.

Statements	Agree	Disagree
------------	-------	----------

v. One need not consult any agrl. expert for crop planning.

vi. It is possible to increase the yield/ through farm production plan.

B. Production Orientation:

i. Timely planting of a crop ensures the yield.

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

iii. Determining fertilizer dose by soil testing saves money.

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

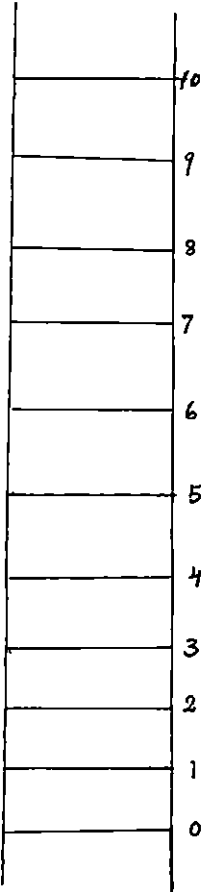
	Statements	Agree	Disagree
v.	Seed rate should be recommended by the specialists.		
vi.	With low water rates one should use as much irrigation water as available.		

C. Marketing Orientation:

- i. Market news is not so useful to a farmer.
- ii. A farmer can get good price by grading his produce.
- iii. Warehouse can help farmer to get better price for his produce.
- iv. One should sell his produce to the nearest market irrespective of price.
- vi. One should grow those crops which have more market demand.

XXV. Measurement of group cohesiveness dimensions

Certain dimensions of group cohesiveness are listed below in the form of questions. Please indicate to what extent you would like to be placed in the appropriate steps of the self anchoring ladder. Put only serial numbers of the items within each step of the ladder based on your likeness in the group management atmosphere.

Item No.	Questions for the items	Likeness.
1.	Regarding the <u>interaction with the</u> group members, in which step you would like to be placed?	
2.	Regarding <u>Group attraction</u> , in which step you would like to be placed?	
3.	Regarding <u>interdependence</u> in the group, in which step you would like to be placed?	
4.	Regarding <u>feeling of oneness</u> within the group members, in which step you would like to be placed?	

Item No.	Questions for the items	Likeness.
5.	Regarding <u>uniform opinion</u> with in the group members, in which step you would like to be placed?	
6.	Regarding <u>interpersonal communication</u> within the group, in which step you would like to be placed?	
7.	Regarding <u>solidarity</u> within the group members, in which step you would like to be placed?	
8.	Regarding <u>mutual agreement</u> within the group, in which step you would like to be placed?	
9.	Regarding <u>harmonious relationship</u> with the group members; in which step you would like to be placed?	

Item No.	Questions for the items	Likeness.
10.	Regarding <u>intimacy</u> among group members in which step you would like to be placed?	
11.	Regarding <u>mutual trust</u> with group members, in which step you would like to be placed?	
12.	Regarding <u>adjustability</u> with group members, in which step you would like to be placed?	
13.	Regarding <u>friendliness</u> with group members in which ^{step} you would like to be placed?	
14.	Regarding <u>loyalty</u> with group members in which step you would like to be placed?	
15.	Regarding <u>group morale</u> in which step you would like to be placed?	
16.	Regarding <u>shared responsibility</u> within the group, in which step you would like to be placed?	

Item No.	Questions for the items	<i>Likeness.</i>
17.	Regarding <u>group decision</u> , in which step you would like to be placed?	
18.	Regarding <u>group co-operation</u> , in which step you would like to be placed?	
19.	Regarding <u>homogeneity</u> with group members, in which step you would like to be placed?	
20.	Regarding <u>team spirit</u> within the group, in which step you would like to be placed?	
21.	Regarding <u>participation in group activities</u> in which step you would like to be placed?	
22.	Regarding <u>group goal achievement</u> , in which step you would like to be placed?	

Part 2

Preference of extension methods

What are the extension methods that helped you (educated you) to practice the package of operations of paddy (for each practice rank the extension methods as per priority by giving number opposite to each from 1 to 4)

Sl. Package operations No.	Extention methods helped (Give your preference)
i) Seed selection on Community nursery	i) Individual contact ()
	ii) Group Discussion ()
	Training camps ()
	Field visits ()
ii) Land preparation on Community basis	i) Individual contact ()
	ii) Group Discussion ()
	iii) Training Camps ()
	iv) Field Visits ()
iii) Transplanting on community basis	i) Individual contact ()
	ii) Group discussion ()
	iii) Training Camps ()
	iv) Field Visits ()
iv) Manures & Manuring on community basis	i) Individual contact ()
	ii) Group discussion ()
	iii) Training Camps ()
	iv) Field Visits ()

- | | | |
|---------------------|-----------------------|-----|
| v) Plant protection | i) Individual contact | () |
| operations on | ii) Group Discussion | () |
| community basis | iii) Training Camps | () |
| | iv) Field visits | () |

കുടുംബശ്രീ - അഭാവകരം

ഇന്നു കേരളത്തിലെ ചെറുകിട കർഷകരെ നേരിടുന്ന വലിയ പ്രശ്നം കൈവശ ഭൂമിയുടെ വിലയിടുകുറവും സർക്കാർക്കുവേണ്ടിയുള്ള കൃഷി രീതികളുമായ് കേരളത്തിലെ കൈവശഭൂമികളിൽ 87 ശതമാനത്തിലധികവും ഒരു ഹെക്ടറിൽ താഴെ മാത്രമായി പതിവ കൃഷിരീതികളിൽ പലതിനും സാമ്പത്തികസാദൃശ്യത കുടുംബശ്രീയുടെ പ്രശ്നമണ്. ഇതൊക്കെകൊണ്ട് പല ചെറുകിട കൃഷിക്കാർക്കും പുതിയ ഉപാധി മാർഗ്ഗങ്ങൾ കണ്ടെത്തിച്ചു കൃഷി അധികമാക്കി മാറ്റിയിരിക്കുന്നു.

കുടുംബ മേൽ നോട്ടത്തിൽ കൃഷി നടപ്പാക്കുകയ്ക്ക് ചെറുകിട കൃഷിരീതികളിലെ ഉൽപ്പാദനം വർദ്ധിപ്പിക്കാൻ ക്ഷേമവും അനുയോജ്യമായ മാർഗ്ഗം. ഈ വഴിയ്ക്ക് കർഷക സർവകലാശാലയുടെ വിജ്ഞാനവ്യവസ്ഥ വിഭാഗം അടുത്തകാലത്ത് ചില പരിഷ്കണകൾ വിജയകരമായി നടത്തുകയുണ്ടായി. അടങ്കലാലിഖിതസുൽക്കർ തുറവുർ എന്ന സ്ഥലമണ്. ഇതിനുവേണ്ടി പ്രധാനമായി തെരഞ്ഞെടുത്തത്.

ഈ ഗ്രാമങ്ങളിലെ ചെറുകിടകൃഷിക്കാരെ പുതിയ കൃഷി രീതികൾ കൈമാറ്റ സ്വീകരിക്കുന്നതിനു പകരം സഞ്ചയസമിതികളുടെ കൃഷിഭൂമികളുടെ കുടുംബ മേൽനോട്ടം നടത്തി ഉൽപ്പാദനം വർദ്ധിപ്പിക്കുവാൻ സഹായിക്കുകയ്ക്ക് സർവ്വകലാശാല പദ്ധതികൾ. ഇതിനു വേണ്ടി കൈവശഭൂമിയിൽമേലുള്ള ഉടമസ്ഥാവകാശം തുടങ്ങിയതും കൃഷിക്കാരെ അനുപചാരികയായ കർഷക സമിതികളുടെ കീഴിൽ സംഘടിപ്പിച്ചു സഞ്ചിപ്പിച്ചു പൊതു ഞാടി നിർമ്മാണം, മലസേചനം, വളം ചേർക്കൽ കിടന്നാശിതി പ്രദർശനം തുടങ്ങിയവയെല്ലാം പൊതുവായ ഉപവർദ്ധനത്തിലൂടെയണ് നടത്തിയത്. കർഷക സർവകലാശാലയുടെ പരിഷ്കണശാലയിൽ നിന്ന് പാടത്തോട്കൂടി എന്ന പദ്ധതിയുടെ കീഴിൽ നടത്തിയ ഈ പരിഷ്കണം "കുടുംബ പ്രവർദ്ധനം" എന്ന തലത്തിന്റെ പ്രാധോധികത തെളിയിച്ചിരിക്കുന്നു.

അടങ്കലാലിഖിതസുൽക്കർ തുറവുർ എന്ന ഗ്രാമത്തിൽ നടത്തിയ പരിഷ്കണം വളരെ വിജയകരമായിരുന്നു. 100 കർഷക കുടുംബങ്ങളെ ചേർത്ത് സംഘടിപ്പിച്ച തുറവുർ കർഷക സമിതിയ്ക്ക് ഈ പരിപാടി നടപ്പിലാക്കുവാൻ കർഷക സർവകലാശാലയെ പ്രേരിപ്പിച്ചത്. പരിപാടിയിലൂടെ അഭ്യർത്ഥിച്ച 100 കർഷക കുടുംബങ്ങളിൽ 25 കൈവശമുള്ള 25 ഹെക്ടർ സ്ഥലത്തെ നെൽകൃഷിയ്ക്ക് വേണ്ടി കർഷക സർവകലാശാലയുടെ ചാലക്കൂടി ഗവേഷണ കേന്ദ്രം അടിസ്ഥാന വിവരങ്ങൾ ശേഖരിച്ച ശേഷം ഒരു വികസന പരിപാടി തയ്യാറായി. ഇതിനുവേണ്ടി നടത്തപ്പെട്ട സർവ്വകലാശാല പ്രധാന പ്രശ്നങ്ങളും വെളിച്ചത്തു കൊണ്ടു വന്നു. അസംതൃപ്തമായ പരിപാടിയ്ക്ക് ഇവയിൽ പലതിന്റെയും അടിസ്ഥാന പ്രശ്നം. വിരിവു, മൂങ്ങുകൾ, മഴപ്പനി എന്നീ മൂന്നു വിധികളും കൃഷി ചെയ്തിരുന്നവെക്കിലും അടുത്തുള്ള കൃഷിക്കാർക്ക് മേൽനോട്ടമില്ലാത്ത കൃഷിയിറക്കിയിരുന്നതു്. ഇതു കൊണ്ടുതന്നെ വളർച്ചയുടെ വിധി കൃഷിയിലുള്ള നെൽപ്പുഴുവിടുക കീടരോഗങ്ങളുടെ തുടർച്ചയായ അക്രമത്തിന് വിധേയമായിരുന്നു. അപര്യപതമായ നിർവാഴ്ച, പുളിരണം, അസംതൃപ്തമായ വളപ്രയോഗം എന്നിവയായിരുന്നു മറ്റു പ്രധാന പ്രശ്നങ്ങൾ.

പ്ര. - 2555/1986

: 2 :

ഈ പ്രശ്നങ്ങളെ പറ്റി നേരിടുന്ന കൂടുതലായ അനേകമെൻ്റിലും ഉൾക്കൊണ്ടു വർദ്ധിപ്പിക്കുവാൻ കൃഷിഭാരതെ പ്രകൃതിനാലുക എന്ന സർവ്വപനമാണ് സർവകലാശാല അടങ്കം മുതലേ സ്വീകരിച്ചത്. 25 ഐക്ടർ നിയമത്തെ കൃഷി ഷീകർ മുഴുവനും കൂടാതെ നടപ്പിലാക്കണമെന്ന് കൃഷിഭാരതെ തിരുമാനിച്ചു.

ട്രാക്ടർ വാടകവർദ്ധനവും, കുറഞ്ഞ ചെലവിൽ നിലം ഉഴുതും, ജലസേചനം, വളപ്രയോഗം, സസ്യസംരക്ഷണം, കുറ്റ്യാലം ചേർക്കൽ എന്നിവയെല്ലാം കൂടാതെ നടപ്പിലാക്കി. ഇതും കൃഷിയിലുപയോഗിക്കുവാൻ മാത്രമല്ല എല്ലാ ശാസ്ത്രീയ കൃഷി മുറകളും നടപ്പിലാക്കുവാൻ കർഷകരെ പ്രേരിപ്പിക്കുകയും ചെയ്തു.

1986-87 ലെ മൂന്നു വിളകൾക്കും കിടിയ വർദ്ധിച്ച വിളവും സർവകലാശാല നടപ്പിലാക്കിയ കൂടുതലായ അനേകമെൻ്റ് സർവ്വപനത്തിൻ്റെ വിജയം തെളിയിച്ചു. ഒരു ഐക്ടറിൽ നിന്ന് സമിതിയംഗങ്ങൾക്ക് 8700 ക. ലഭിച്ചപ്പോൾ മറ്റുള്ള കൃഷിഭാരതെ 3540 ക. മാത്രം ലഭിച്ചത്. കേരളത്തിലെ അസംഖ്യം വരുന്ന ചെറുകിട കർഷകർക്ക് സ്വീകരിക്കാവുന്ന ഒരു മാതൃകയാണ് കൂടുതലായ അനേകമെൻ്റിലൂടെ തുറന്നുവെച്ച കർഷകർ ഉന്മേഷമുള്ള വിജയം.

GROUP MANAGEMENT IN RICE PRODUCTION AN ACTION RESEARCH

BY

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ABSTRACT

The study "Group management in rice ~~production~~- an action research " was conducted in Punchakari of Kalliyoor Panchayat, Trivandrum. The study was aimed at to analyse reasons for the success or failure of earlier group approaches and also to analyse the constraints in increasing rice production. It was planned to develop and implement an action programme to overcome the identified constraints through group management. 34 farmers in an area of 10 acres were selected for the study. The research design followed in this action research study was that of 'before and after experiment' type, in which the experiment had the respondent's participation in planning, implementing and evaluation and with an action research component of utilising the results of the study for further refinement of the group management approach through continuous monitoring and evaluation of the entire programme.

A suitable technology package was identified to overcome the selected constraints and introduced in the study area. The impact of the action programme on the selected socio psychological and economic variables was closely monitored and evaluated.

The most important reasons for the failure of earlier group approaches were : 'the political system does not permit', / 'group approach possible only when there is continuous leadership', 'group approach dies out when external leadership

is withdrawn', 'no ^{knowledge} about group-management', 'farmers are not co-operative', 'heterogenous group members are more in villages', 'no proper machinery to popularise group management', 'less scope for unanimous decision', 'no proper extension guidance', 'no proper guidance from Government side', 'inadequate number of voluntary organisations', 'public involvement is less',.

The nature of content reflected in the results on the constraints in increasing rice production were: 'non availability of inputs', 'high cost of inputs', 'incidence of pests and diseases', 'labour related problems', 'marketing', 'drainage', and 'lack of technical advice'.

There was a significant change on the favourable side in the use of information sources by the respondents exposed to group management approach.

The changes brought in the adoption of package of practices through group management approach were significant.

Group management approach had brought in favourable changes in the character of social participation of

respondents.

Group management approach had played a vital role in enhancing the knowledge level about high yielding varieties of rice cultivations.

There occurred a gradual but a favourable improvement in the cosmopolitanness of the respondents over group management approach period.

There was a significant favourable change in the extension orientation of respondents through group-management.

The respondents in the study area had changed significantly with regard to their management orientation due to group management efforts.

Group management approach had influenced the attitude of respondents favourably towards it.

The group cohesiveness was improved among the members of farmers as a result of group activities.

There was a positive significant relationship developed

between the yield obtained by the respondents and group management efforts.

The net income from rice cultivation was increased considerably due to continuous exposure to group management approaches.

There was marked significant reduction in the cost of cultivation of rice noticed for all the operations selected for ^{the} study except harvesting over the four crop seasons as a result of group management. However a slight ^rincrease in the cost of cultivation of different operations noticed other than transplanting and manures and manuring during the follow up crop season when the Researcher's supervision was withdrawn.

The extension method, field visit was preferred much for all the package of practices of high yielding varieties of rice cultivated in the study area. Farmer's training, group discussion and individual contact were found to be preferred next best in their sequence during the post exposure periods of group management approaches.