GENDER ANALYSIS OF RICE FARMERS IN THIRUVANANTHAPURAM DISTRICT

BY

S. HAEMA LATHA

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

DEPARTMENT OF AGRICULTURAL EXTENSION
COLLEGE OF AGRICULTURE
VELLAYANI, THIRUVANANTHAPURAM

1997

DEDICATED TO

MY PARENTS

"Give thanks to the LORD, for He is good His love endures forever"

Psalms 136 : 1

ACKNOWLEDGEMENT

I extend my heart felt thanks and indebtedness to Dr. S. Shilaja, Associate Professor, Department of Agricultural Extension and Chairman of Advisory Committee for her meticulous guidance, timely suggestions, unfailing patience, constant encouragement and moral support during the conduct of this research work and preparation of thesis.

I place on record my sincere thanks to Dr. B. Babu, Professor and Head, Department of Agricultural Extension for his generous help throughout the course of work and critical scrutiny of the manuscript.

I express my deep sense of gratitude to Dr. M. M. Hussain, Associate Professor, Department of Agricultural Extension for his whole hearted co - operation and assistance extended throughout the course of this investigation.

I am extremely thankful to Dr. P. Saraswathy, Professor and Head, Department of Agricultural Statistics, for her valuable suggestions in statistical analysis of the data.

I am greatly indebted to Dr. S. Sobhana, Associate Professor and Dr. N. Kishore Kumar, Assistant Professor for their valuable suggestions and expert help at every stage of my study.

I am thankful to Shri C.E. Ajith Kumar, Junior Programmer, Department of Agricultural Statistics for his consideration and patience in analysing the data.

I convey my fervent thanks to my senior friends and my classmates for their timely help and encouragement during the course of my study.

I also thank ARDRA Computers, Vellayani for neatly executing the word processing and printing the thesis.

My record of gratitude would be incomplete without a special mention of my parents, brother and my husband for their affection and moral support which was a great source of inspiration to me all through the course of my study.

Vellayani.

S. HAEMALATHA.

DECLARATION

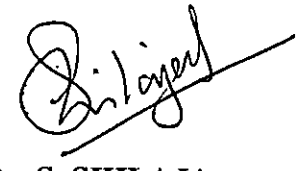
I here by declare that this thesis entitled "**Gender Analysis of Rice Farmers in Thiruvananthapuram district**" is a bonafide record of research work done by me during the course of research and that the thesis has not previously formed the basis for the award of any degree, diploma, associateship, fellowship or other similar title, of any other University or society.

Vellayani.
16-10-1997

S. HAEMA LATHA

CERTIFICATE

Certified that this thesis entitled "**Gender Analysis of Rice Farmers in Thiruvananthapuram district**" is a record of research work done independently by **Ms. S. Haema latha** under my guidance and supervision and that it has not previously formed the basis for the award of any degree, fellowship or associateship to her.



Dr. S. SHILAJA
Chairman,
Advisory Committee,
Associate professor,
Dept. of Agricultural Extension,
College of Agriculture,
Vellayani.

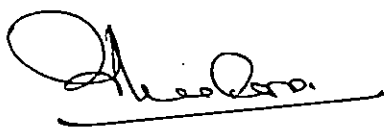
Vellayani,
16-10-1997

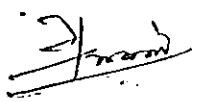
Approved by

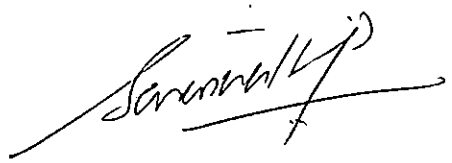
CHAIRMAN

Dr. S. SHILAJA 

MEMBERS

Dr. B. BABU 

Dr. M. MOHAMMED HUSSAIN 

Dr. P. SARASWATHY 

EXTERNAL EXAMINER 

29/12/97

Dr. H. PHILIP

CONTENTS

LIST OF TABLES

LIST OF ILLUSTRATIONS

INTRODUCTION

"Women is entitled to a supreme place in her own sphere of activity as man is in his"

Mahatma Gandhi

INTRODUCTION

The rural economy of India is predominantly agricultural with its production at a subsistence level. Rice farming is one of the main component of the agricultural system. In many parts of the country rice is the staple food and also represents a status symbol for many poor rural households.

The last decade of the twentieth century has seen the emergence of gender as one of the basic issues of human progress. The focus on gender rather than women makes it critical to look not only at the 'Category women' but at women in relation to men. Men and women play different roles in society with their gender differences shaped by ideological, historical, ethnic, economic and cultural determinant (Whitehead, 1979).

The division of labour in farm household is also structured by gender, affecting not only task allocation but also the exercise of

control over the farm business. Farming itself has a very strictly demarcated gender division of labour, whereby the women specialize in work within or near the house and men specialize in work outside the house. Women's responsibilities can be crudely categorised into maintenance of households, family growth, kitchen gardening and farm yard based activities including crop processing and livestock care. Agricultural field work and external transactions are the responsibilities of men. This division of labour applies to all rural families regardless of their socio-economic status. But now the percentage of female workers in agriculture has increased due to the migration of peasant males.

In rice farming too there is significant difference in the roles played by men and women. There are many activities in rice farming which are traditionally considered almost the exclusive preserve of either men or women. Generally men are supposed to do the heavier work like ploughing , puddling and levelling whereas tasks involving most drudgery namely transplanting, weeding and harvesting were considered to be women's tasks.

Women's status nowadays is much better as compared to the past. Today's women has got better educational and employment opportunities. She is contributing much to the family income and also participate in almost all household and farm decisions. Their involvement in agricultural operations is besided their usual obligation

3

of discharging domestic work. However much of the labour contributed by them specially in the domestic chore and also outside are not usually considered as productive. The common notion that female labour is less efficient input than her male counterpart is not borne by facts. Their work is equally essential for the smooth functioning of the economy whether it is at the community, farm or at the household level.

The economic development efforts in India have in recent decades focussed increasingly on agricultural development. But the success of any policy and programmes designed to facilitate transfer of agricultural technology and women welfare measures including upgradation of their knowledge and skill would largely depend on the level of participation of both men and women in agriculture.

Agriculture being the main occupation of the Indian community it is imperative to analyse the roles played by both men and women in rice farming and their extent of participation in it.

It was with these aims, the following specific objectives of study have been set.

1. To study the role perception and role performance of rice farmers in rice farming activities.

2. To study the role perception and role performance of rice farmers in decision making.

3. To analyse the personal and psychological factors influencing their role perception and role performance.

4. To assess the training needs and constraints experienced by rice farmers.

Need for the study

In Kerala rice cultivation is losing proposition because of the migration of the peasant males from farm to non farm jobs. The farmers are losing interest in rice farming as they don't find it remunerative. Only very few studies have so far been conducted to see to what extent the farmers are involved in rice farming. In this study an attempt has been made to study the nature and extent of involvement of both men and women in rice farming and the factors contributing towards their participation.

Scope of the study

The findings of the study will throw some light in formulating strategies that could ensure the effective contribution of women in agricultural production and to develop women oriented policy measures, since the women's role in subsistence agricultural sector is vital to

5

develop the cohesive agricultural sector. The gender analysis also shows way to include women in development projects for a successful outcome. The training needs and the constraints identified would lead to evolving suitable measures which would be suitably tailored to the needs of the farmers. The inferences derived out of this study help in preparing the microlevel development plans for the betterment of the farming community, this would ultimately lead to better development in the agricultural sector especially rice farming.

Limitations of the study

The present study had the limitations of time and other resources as it was undertaken as part of the requirement for the P.G programme. Hence it restricts the exploration of the area in a greater depth and in a more comprehensive manner. Since the study was based on the expressed opinion of the respondent it may or may not be free from their individual biases and prejudices. Inspite of all these limitations accomplishment of the objectives to the maximum extent possible has been earnestly tried for.

THEORETICAL ORIENTATION

2. THEORETICAL ORIENTATION

This chapter intends to furnish a proper orientation to the study by associating available research findings with the proposed research problem. The review of previous works attempted in this chapter may assist in the delineation of new problem areas and may provide a basis for formulating a theoretical frame work for the study by which empirical investigation is facilitated. The discussion will be useful to select relevant hypothesis against which the empirical evidence can be interpreted. The review of past studies has been presented under the following heads.

2.1 Concept of gender and gender analysis

2.2 Concept of role perception

2.3 Concept of role performance

2.4 Role perception of rice farmers in rice farming activities

2.5 Role perception of rice farmers in decision making

2.6 Role performance of rice farmers in rice farming activities

2.7 Role performance of rice farmers in decision making

2.8 Personal and psychological factors influencing the role perception and role performance

2.9 Training need of rice farmers

2.10 Constraints experienced by rice farmers.

2.1 Concept of Gender

Gender is a system of relationship rather than a set of attributes which distinguish male and female.

Oxford English dictionary (1987) defined gender as a grammatical classification denoting both sexes ie, male and female.

Websters English dictionary (1988) stated gender as a grammatical classification of two sexes that is partly based on distinguishable characteristics like shape, social rank and manner of existence.

Bhattacharya and Rani (1992) defined gender as the relative status of men and women in a given society because of their being 'men' or 'women'. Gender describes roles, identities and power relations of men and women that are defined by the society and are socially constructed.

Chakravarthy (1995) stated that quite often 'sex' and 'gender' are used as synonyms though 'sex' basically indicates biological and physical differences between members of the same species whereas 'Gender' is socially constructed perception of an individual based on expected behaviour and specific roles assigned to him or her by the society.

2.1.1 Gender analysis

According to Bhattacharya and Rani (1992) Gender analysis is a methodology used to identify the roles and responsibilities of various members of the household (male and female) and their access to and control over resources and benefits under prevailing institutional norms and mechanisms.

In the present study Gender analysis is to identify the roles played by both men and women farmers in rice farming.

2.2 Concept of role perception

2.2.1 Concept of role

Many authors have defined role in different ways.

Newcomb (1951) opined that the ways of behaving that are expected of any individual who occupies a certain position constitutes the role associated with that position.

Sarbin (1954) defined role as a patterned sequence of learned actions or deeds performed by a person in an interaction situation.

Lundberg *et al.* (1958) stated role as a pattern of behaviour expected of an individual in certain groups or situations.

Ogburn and Nimkoff (1964) defined role as a set of socially expected and approved behaviour patterns consisting of both duties and privileges associated with a particular position in a group. In otherwords, role refers to the obligation which an individual has towards his group.

According to Hodge and Johnson (1970) role means a unique combination of talent and attitude adopted to discharge of specific assignment.

Luthans (1983) opined role as a position that has expectation evolving from established norms.

In the present study 'role' is defined as the decision as well as action function performed by a rice farmer in rice farming.

2.2.2 **Concept of perception**

Crow and Crow (1956) described perception as the meaningful sensation that assume an important role in the life of an individual.

Attneave (1962) asserted that perception had to do with the input side of the organisms with certain short term consequences of variations in stimulating conditions.

Kolsa (1970) defined perception as the selection and organisation of materials which stem from the outside environment at one time or other to provide the meaningful entity of experiences.

According to Mitchell (1978) perceptions are those factors that shape and produce what one actually experience. Moreover behaviour is a function of one's perception and changes in perception could result change in behaviour. Thus perception could be a determinant of performance.

Pestonjee *et al.* (1981) stated perception as the process of receiving, selecting, organising, interpreting, checking and reacting to sensory stimuli or data.

2.2.3 **Concept of role perception**

Role perception was defined by Sargent (1951) as pattern or type of social behaviour which seems situationally appropriate to an actor in terms of demands or expectations of those in this group.

Mathew (1980) stated role perception as a person's indication of what he feels important to do with reference to any idea or statement presented to him.

Ashaletha (1993) operationalised role perception as the perceived degree of importance attached to the role items to be performed by the respondent.

Alex (1994) defined role perception as the thinking and feeling function of agricultural labourer towards decision making regarding paddy production with the farmers.

For the purpose of the study, role perception has been defined as the person's indication of what he feels to decide and act with respect to a particular practice in rice farming.

2.3 Concept of Role Performance

2.3.1 Performance

Mc Gregor (1960) suggested that performance of an individual is the function of certain characteristics of the individual including his knowledge, skill, motivation, attitude and certain aspects of the environmental situation.

According to Devar (1969) performance is a function of an individual's ability, knowledge and motivation depicted schematically as $P = M [A + K]$. The existence of ability (A) and knowledge (K) does not by itself guarantee that the individual will put forward his best

effort. There is another factor motivation (M) which helps to determine the effort which can reasonably be expected from him.

2.3.2 **Role performance**

Davis (1949) defined role performance as how as individual actually performs a task in a given situation as distinct from how he is supposed to perform.

Sobhana (1982) stated role performance as the role being actually performed by virtue of occupying a particular role position.

According to Warris *et al.* (1990) role performance means the manner in which an employer carries out or actually performs his or her role.

Bhople and Patki (1992) opined role performance as the actual performance of various farm operations by women labourers.

For the purpose of this study, role performance has been constructed as the decision and action function performed by a rice farmer towards rice production process.

2.4 Role perception of rice farmers in rice farming activities

Ariffin (1975) from his study with Malai peasant farmers concluded that the farmers are more inclined to accept a recommended package of practice if he perceive that the practice is relevant to his situation.

Singh and Singh (1980) reported that profitability was the best perceived characteristic of high yielding variety of wheat for both farmers and farm women where as cultural compatibility were the least perceived ones for farmers and farm women respectively.

Chakravarthy (1981) revealed that small farmers perceived the indigenous farm practices to be more simple, profitable, cheap, physically compatible and flexible than the medium and big farmers.

Kareem (1984) reported that majority of respondents (55 per cent) were found to have high level of role perception followed by (35 per cent) of respondents with low level of role perception.

Ramachandran (1992) found that above 95 per cent of the participating farmers perceived the cultivation of minikit varieties as profitable.

Hussain (1994) observed that a slight majority of the respondents perceived that the coconut climbers available in their locality were not sufficient to meet their needs.

2.5 Role perception of rice farmers in decision making

Seema (1986) revealed that majority of the farm women perceived areas like purchase and sale of land, care and management of animals, family budget, crop and variety to be grown, type of manures and fertilizers, quantity of fertilizers, type of weeding, time of harvest and number of labourers to be hired.

Alex (1994) in his study observed that the perception of male labourers is found to be higher in areas like land preparation, transplanting, weeding, application of plant protection chemicals, post harvest operations, interval of irrigation, deciding the variety, number of ploughing, type of manures and fertilizers, time of harvest and quantity of grains to be stored etc.

In the case of female labourers their perception is found to be high in roles like spacing to be adopted for transplanting, time of weeding, number of labourers required for weeding, time of harvest, post harvest operations and processing of seeds.

2.6 Role performance of rice farmers in rice farming activities

Devadas (1975) revealed that in modern agriculture women shared a number of farm operations with men. Activities such as seed selection, storage, sowing behind the plough, dibbling and planting, weeding, collection and storage of manure were mainly carried out by women.

Dipali (1979) concluded that regarding task performance of feminine gender it was high in five operations sowing, weeding, grain storage, land preparation and cleaning seeds for sowing.

Anandalakshmi and Kelkar (1980) reported that during the harvesting season the responsibility shouldered by women was maximal. Carrying bundles of harvested crop to the threshing spot was a heavy task and it was performed mostly by women. Men rarely shoulder the responsibility in the task.

Kalpana (1983) observed that the operations like sowing, transplanting, weeding, harvesting and threshing were performed more efficiently by women than men.

Sherwani (1983) reported that in rural areas female workers mostly acted as helpers to men in agricultural activities. They were

16

doing works such as harvesting, weeding, planting, threshing and manuring.

Jegannathan (1984) revealed that women performed the tasks such as planting, weeding, fertilizer application, plant protection, harvesting and post-harvest operations along with men. In hilly areas of Himachal Pradesh and Uttar Pradesh the entire farming and livestock management was solely performed by women.

Saiba (1985) found that transplanting and harvesting of paddy were done exclusively by female workers.

Varma (1985) reported that farm women helped the farm men in ploughing the field, preparation of land, sowing of seeds and making bunds for irrigation and interculture and preservation of seed for the next crop season.

Patnaik and Devi (1986) observed that the participation of female labour was higher in every activities in farm, nonfarm and household than the males.

Singh *et al.* (1988) revealed that on an average three fourth of the total work in agriculture is performed by family alone. The transplanting work is done exclusively by the female workers. He also

found that men associate themselves with agriculture mainly at the time of ploughing and marketing operations.

Singh (1989) found that farm women along with the male member of the household attended to sowing seeds, weeding, transplanting, watering of fields, harvesting the crops, poultry keeping and also helped in family expenditure.

Shilaja (1990) reported that majority of large and small farm women performed roles like post-harvest operations, processing and supervision of hired labour, while marginal farm women in addition to the above roles performed field oriented roles like weeding, harvesting etc.

Sikka and Swarup (1990) revealed that males spent a greater proportion of the time on crop production than females.

Singh and Sharma (1991) observed that in the plains the highest level of participation of females was in the case of storage while for male it was in the case of land preparation. The operations mainly carried out by women were storage, seedling uprooting and dehusking. While the operations carried out jointly were harvesting, threshing, winnowing, nursery sowing, nursery aftercare and transplanting. It was

found that the major operations carried out predominantly by males were irrigation, plant protection and top dressing.

Sudharani and Raju (1991) reported that the participation of women in agricultural operations was more than the males in paddy based cropping system. It was also found that weeding, harvesting, transplanting, nursery raising and fertilizer application were the job traditionally done by farm women in paddy based cropping system in the order of importance.

Varma and Sinha (1991) revealed that ploughing, puddling, spadework during irrigation and pesticide dusting were solely undertaken by men and 100 per cent of women labour force was engaged in transplanting of paddy. Weeding and harvesting were done by both men and women. Carrying load on heap was performed by 93.5 per cent of women and 15 per cent of men. The other operation like sowing behind the plough was performed by 72.5 per cent by men and only 27.5 per cent of women.

Gautum and Meenakshi (1992) indicated that in Himachal Pradesh within agriculture labour force the proportion of women was more as compared to men and their contribution in agriculture or farm activities was also greater.

Anitha *et al.* (1993) reported that women in general participated in sowing, harvesting and tillage operations.

Sheela and Katteppa (1995) found that 34.91 per cent farm women having these enterprises spent maximum time on farm activities, farm women with single enterprise (30.8 per cent) spent more time on household activities and farm women with two enterprises 25.83 per cent got enough time for resting and other leisure time activities.

Vijayalakshmi (1995) reported that majority of the women participated to greater extent in operations like sowing, weeding, harvesting, drying and labour supervision. None of the farm women participated in ploughing, irrigation management and curing operations.

Senthamarai (1996) observed that farm women had high level of participation in harvesting than other operations. They have medium level of participation in weeding, hoeing and transplanting, average level of participation is found in preparation of nursery, controlling pest attack, fertilizer application and spraying insecticide. The farm women had low level of participation in seeds sowing and supervision.

2.7 Role performance of rice farmers in decision making

2.7.1 Decision making

Decision making is a conscious and human process involving both individual and social phenomenon based upon factual and value

premises, which concludes with a choice of one behavioural activity from among one or more alternatives with the intention of moving towards some desired state of affairs.

Deacon and Firebaugh (1981) stated decision making as a process of evaluation in making involves a subjective aspect and an objective or resource aspect. Decision making is the process through which the subjective and objective evaluation takes place and the decision is a form of value.

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

2.7.2 **Role performance in independent decision making**

Bhagat (1980) stated that employed rural women played a dominant role in the decision making process especially on money and management of family.

Hiranad and Kumar (1980) concluded that most important areas in which women were found to influence the decisions were purchase and sale of land, purchase and sale of animals.

Dubey *et al.* (1982) revealed that majority of farm women participated highly in decision making on aspects such as number of milch animals to be kept, quantity and type of green fodder to be fed to milch animals.

Achanta (1982) in her study observed that women were consulted with regard to the adoption of improved seeds, marketing of food grains and adoption of improved agricultural implements and fertilizers.

Pradhan (1983) reported that on labour allocation men take more decisions 46.2 per cent by females. In agricultural decisions women make an overwhelming majority of the decisions, particularly those concerning the use of their own or improved seeds (20.7 per cent by men and 60 per cent by women) and the seed selection process 81.2 per cent of the decisions are made by women.

Singh and Chander (1983) stated that women played a key role in performing various tasks related to cattle management women made decisions on procuring loans and credits.

Sisodia (1985) observed that in Haryana more than 30 per cent of the farm housewives were consulted regarding the choice of crops to be grown, variety of seeds, fertilizer application, number of irrigation, quantity of grains to be marketed and place of marketing.

Seema (1986) revealed that majority of farm women took independent decision in areas like storage of produce and marketing of produce.

Giriappa (1988) reported that 42 per cent of female heads took major decision in working conditions, some 3 per cent equal decisions along with male members. In case of men headed households the proportion of female respondents took major decision was 11.3 per cent whereas those who took equal decision accounted to 18.4 per cent. Put together those who took major and equal decision come to 45 per cent in women headed household and 29.7 per cent in men headed households.

Kaur *et al.* (1988) revealed that the husband played a dominant role in farm related decisions in small and medium categories. In large farm household joint decision by both husband and wife are common.

Menon and Bhaskaran (1988) found that in Kerala, more than 90 per cent of farm women took part in decisions relating to storage and marketing of produce and management and care of animals. But involvement is less than 90 per cent in decisions relating to the choice of crops and varieties, weeding, manuring, plant protection, time of harvesting and type of implements to be used.

Singh *et al.* (1988) stated that more than 51 per cent of the total decisions with respect to agricultural operations were taken solely by the men and only about 29 per cent of the decisions were taken by the women.

Shilaja (1990) investigating the role of women in mixed farming, stated that more than 50 per cent of large, small and marginal farm women participated in taking decisions related to the areas like choice of crops, seed selection use and storage of produce, care and management of animals.

Alex (1994) reported that women labourers took decisions in areas like spacing to be adopted for transplanting, time of weeding, number of labourers required for weeding, time of harvest, threshing, winnowing and processing.

2.7.3 **Role performance in joint decision making**

Arya (1963) observed that families with high education status took decisions consulting their wives. Wives took upperhand in sale and purchase of land and agricultural marketing.

Bhamrah (1966) observed that farmers sought the advise of their wives in decision making on improved seeds of crops, on purchase and

use of plant protection measures and vegetable cultivation. Older respondents consulted mostly their wives with a view to arriving at decisions for the purchase and sale of livestock, leasing in land, loans or credit taking and disposal and storage of farm produce.

Sharma and Singh (1970) found that in majority of cases, the husband and wife decided together issues concerning seeds storage, care of animals, selection of seeds and time of selling farm produce.

Puri (1972) observed that the decisions on farm activities were predominantly husband-oriented. In case of spending additional income from farm decisions were made jointly be 36 per cent and 43 per cent couples respectively.

Devadas (1975) indicated that farm women were almost 'always' consulted in making decisions on various farm operations like getting new seeds, selecting crops, getting fertilizers and pesticides approaching labourers.

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

Savarimuthu (1981) indicated that women made lesser independent decisions on matters relating to farming when compared to collective decisions.

Yadav (1982) reported that women decide about sale and purchase of animals, husband and wife made joint decisions in as many as 56.7 per cent families. Participation of women decreased in farm credit, variety of crop to be grown and marketing of agricultural produce.

Singh and Chander (1983) stated that while working together in the fields, men and women usually discussed matters with each other, and the final decision was taken by men in consultation with women only.

Seema (1986) revealed that farmers took joint decisions in aspects such as purchase and sale of land, care and management of animals, family budget, selecting crop and variety and deciding the wages.

2.8 Personal and psychological factors influencing role perception and role performance

2.8.1 Age

Dipali (1979) states that lower age group of respondents were in high participation score range in agricultural operations than other groups.

Singh and Chander (1983) reported that age was found to exercise non significant effect on women's participation in decision making.

Perumal and Uthayakumar (1984) revealed that age had no significant relationship with the performance of contact farmers.

Seema (1986) found that age is significantly related with the role performance of farm women in decision making.

Kanwar and Koranne (1989) observed that women working in agriculture fall in the age group of 21 to 35 years.

Shilaja (1990) and Menon (1994) reported that majority of the farm women belonged to middle age.

2.8.2 Caste

Sharma and Singh (1970) revealed that role performance of agricultural labourers coming from poor and backward castes was found to be higher than that of others.

Singh and Sharma (1988) in their study found that there was no significant association between caste and extent of participation of women in decision making in farm business.

Shilaja (1990) and Bhople and Patki (1992) found that the majority of the respondents belonged to backward caste.

2.8.3 **Educational status**

Dubey *et al.* (1982) concluded that participation of farm women in decision making regarding animal husbandry practices remained same irrespective of their educational level and herd size.

Rexlin (1984), Seema (1986), Sharma *et al.* (1988) and Warris *et al.* (1990) found a significant and positive association of education with role performance of women in decision making.

Thenmozhi (1990) reported that most of the farm women (43.33 per cent) had education upto middle school level.

2.8.4 **Occupation**

Das and Sarkar (1970) observed a direct relationship between primary occupation and adoption behaviour of farmers.

Shanmugavadivu (1992) reported that more than half (51 per cent) of the respondents husbands had farming alone as the primary occupation. Also occupation was found to have a significant association with roles related to their children's education, health and hygiene.

Boniface (1996) revealed that majority of the respondents have farming as their main occupation.

Varma (1996) reported that majority of the respondents (42 per cent) were self employed. Under the farming and business categories an equal distribution of the respondents was seen.

2.8.5 **Size of holding**

Deb *et al.* (1968) revealed that rationality of farmer in decision making was related to size of farm.

Sharma and Singh (1970) found that the size of holding had significantly affected the extent of participation.

Sawer (1973) observed that women's participation in decision making was negatively associated with farm size.

Balan (1987) found that farm size was positively associated with the role perception.

Anithakumari (1989)and Thakur (1991) reported that majority of respondents possess marginal size of holdings.

Shanmugavadivu (1992) revealed a negative and significant association between farm size and women's participation in farm activities.

Alex (1994) in his study found that farm size was negatively associated with the role perception of agricultural labourers.

2.8.6 **Annual income**

Wilkening and Johnson (1958) reported that status of women was positively associated with her involvement in major decisions only in those families having both high income and social participation.

Deb *et al.* (1968) revealed that rationality of farmers was related to farm income.

Govind (1984) found that annual income of farm wives gave significantly negative association with the extent of participation in farm activities.

Shanmughavadivu (1992) and Devi (1994) inferred that majority of the respondents belonged to the medium income category.

2.8.7 Farming experience

According to Gurusamy (1987) and Vimala (1989) stated that a farm women had high level of farming experience, followed by medium and low levels.

Alex (1994) reported positive and significant association between farming experience and role performance of agricultural labourers in decision making.

Devi (1994) revealed that a largest proportion (88.33 per cent) of the farm women had high level of farming experience.

Vijayalakshmi (1995) inferred that majority (70.83 per cent) of the farm women respondents had medium farming experience, followed by high and low farming experience.

2.8.8 Contact with extension agency

Sawer (1973) pointed that opportunities for women to participate in farm decision making was not significantly related to extension contact.

Thimmaraju (1989) reported that majority of the farmers having high extension agency contact had high economic performance.

Mishra and Tripathy (1991) revealed that women had very little contact with extension staff and were not exposed to formal sources of information.

Nizammudeen (1996) reported that a vast majority of the respondents had higher contact with extension agency.

2.8.9 **Exposure to mass media**

Renukaradhya (1983) found a significant relationship between mass media participation of trained farmers with their level of economic performance.

Pradeepkumar (1993) reported that mass media contact was positively and significantly related with the extent of participation in agriculture and allied fields.

2.8.10 **Cosmopoliteness**

Shilaja (1990) in her study observed that majority of the women agricultural labourers were having low cosmopolite orientation.

Nizammudeen (1996) inferred that 50 per cent of the respondent farmers belonged to high and low group with respect to cosmopoliteness.

32

Shanthy (1997) stated that cosmopolite orientation was found to have a positive significant relationship with labour efficiency of women agricultural labourers.

2.8.11 **Self confidence**

Khare (1976) opined that confidence would play an important role in the success of a creator or innovator.

Pandyaraj (1978) found positive and significant relationship between self confidence and communication behaviour of Junior agricultural officers in Kerala.

Joseph (1983), Nizammudeen (1996), Varma (1996) and Sangeetha (1997) reported a good majority of the respondents belonged to high group with respect to self confidence.

2.8.12 **Self concept**

Mc Auley (1976) defined self concept as the conglomerate of perceptions one has about oneself, it may contain in correct pictures and its development is continual.

Robbins and Jones (1976) explained self concept as those perceptions and social perceptions of ourselves that we have acquired

through our interaction with others and that have been validated by our experiences.

Joseph (1983) found significant and positive relationship between self concept and communication effectiveness of village level agricultural demonstrators.

2.8.13 **Scientific Orientation.**

Kamarudeen (1981) found significant positive relationship between scientific orientation and attitude of farmers towards the demonstrated agricultural practices.

Anithakumari (1989) reported that forty five to fifty five per centage of farmers were below the mean scientific orientation score of their respective group.

Raji (1991) and Sangeetha (1997) found that the majority of the respondents had high scientific orientation.

2.8.14 **Economic Motivation**

Babu (1984) observed that a non significant association of economic motivation with economic performance of grape growers.

Taylor (1991) reported that economic motivation had positive association with labour productivity.

Senthamarai (1996) revealed that [42.5 per cent] of the respondents had low level of economic motivation followed by medium [32.5 per cent] and high [25 per cent] .

Nizammudeen (1996) and Varma (1996) found that majority of the respondent farmers had high economic motivation

2.8.15. **Value Orientation.**

Parsons and Shills (1965) defined value orientation as those aspects of the actors orientation which commits him to the observance of certain norms, standards, criteria for selection whenever he is in a contingent situation which allow him to make a choice.

Singh (1973) opined that both in agriculturally developed and underdeveloped villagers the key communicators differed significantly from non communicators with respect to conservatism, scientism and cosmopoliteness.

Padmanabhan (1981) found that men labourers were more progressive than women labourers. There was significant positive

relationship between value orientation and efficiency of agricultural labourers.

Sethy (1982) stated that the traditional values do not favour female participation in agricultural work but they participate to enhance their earnings for the family to make both ends meet.

Singh (1982) reported that a farmer who is predisposed to rational values is more likely to adopt innovations in farming.

Hussain (1994) found that 55 per cent of the coconut climbers possessed low value orientation.

2.8.16 **Risk Orientation**

Kunchu (1989) revealed majority (76 per cent) of the respondent cardomom growers had medium risk orientation while 10.67 per cent having high risk orientation and 13.33 per cent having low risk orientation.

Senthamarai (1996) found that majority of the respondents of marginal farm women category 64 per cent had medium level of risk orientation.

Varma (1996) reported that majority of the respondents (53 per cent) belonged to high group with respect to scientific orientation.

2.8.17 **Innovation proneness**

Singh (1981) reported that adoption was positively correlated with innovation proneness of the small, medium and pooled sample of farmers but no association was found in the case of marginal farmers.

Renukardhya (1983) observed a significant relationship between innovation proneness of trained farmers with their level of economic performance.

Guruswamy (1987) showed that 39.17 per cent of farm women had high level of innovativeness and the rest of them had low and medium level of innovativeness.

Fathima (1993) observed that more than half of the agricultural labourers had high innovativeness.

2.8.18 **Attitude towards rice based farming system**

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

According to Sharma (1972) attitude means a personal disposition which impels an individual to react to some object or situations.

Kuppuswamy (1984) stated that attitudes are learned in the course of life experience which make the individual behave in characteristic ways towards persons objects or issues to which they get related.

Seema (1986) reported that a majority of women in nadar community were found to have either high or medium level of attitude towards farming.

Shilaja (1990) found that large, small and marginal farm women did not differ significantly among themselves with regard to attitude towards mixed farming.

Alex (1994) revealed significant and positive association between attitude of both male and female labourers with their role performance.

Habal (1994) in his study observed that 52 per cent of respondents had neutral attitudes towards agricultural innovations and 28 per cent had a negative attitude towards agricultural innovations.

Boniface (1996) found that majority of neoliterate farmers (90.7 per cent) had a high level of attitude towards scientific agricultural practices.

2.8.19 **Extent of adoption**

Wilkening (1952) postulated that adoption of an innovation as a process composed of learning, deciding and acting over a period of time. The adoption or a decision to act has a series of action and thought decisions.

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

Nanjaiyan (1984) reported that 64.00 per cent of farmers had medium level adoption in cultivation of IR -20 paddy.

Nandakumar (1988) found a significant difference in the adoption level of recommended practices of paddy cultivation before and after the implementation of I.I.D.P.

Kharwara *et al.* (1991) in their study found that the extent of adoption of improved technology of rice cultivation by the scheduled caste families headed by women was more than those headed by men.

Pulamte and Babu (1993) found that only 20.00, 13.00, 6.67 and 15.00 per cent of the respondents adopted the recommended level of urea, DAP, fungicides and insecticides respectively. Majority of them (56.67 per cent) used seed rate at high doses while about one fourth of them practiced preparatory tillage and applied urea more than the recommended doses.

Manjula *et al.* (1994) stated that adoption is higher where the farm women is an elder family member possessing bigger size of holding and higher achievement motivation.

Parvathi (1995) reported more than half of the farm women (56.88 per cent) had medium level of adoption of traditional and modern technologies.

2.8.20 **Knowledge in rice farming**

Deepali (1979) revealed that there was positive relationship between level of knowledge of rural women in farm practices and their degree of participation in agricultural operation.

Padmanabhan (1981) observed a significant positive relationship between the knowledge of scientific agriculture and efficiency of male agricultural labourers whereas no relationship was observed in the case of female agricultural labourers.

Jeyakrishnan (1984) revealed that majority of paddy growers had only a medium level of knowledge about selected low cost technologies of paddy.

Subramaniam (1986) reported that two third of paddy growers (66.83 per cent) possessed medium level of knowledge, 21.67 per cent had high level of knowledge, 17.50 per cent had low level of knowledge in paddy cultivation.

Alex (1994) stated that knowledge was positively and significantly associated with role performance and role perception of male and female agricultural labourers.

Devi (1994) reported that nearly half of both male and female agricultural labourers had high level of knowledge in farming.

2.9 Training need of rice farmers

Roy (1972) revealed that training needs of farmers growing high yielding varieties of paddy were plant protection, fertilizers, irrigation, nursery raising, credit, improved implements, seed treatment, storage, transplanting, marketing and chemical weed control.

Gopal (1974) reported that farmers need training mostly in plant protection measures and use of chemical fertilizers.

Bhuyan and Tripathy (1988) observed that intense training was required by the farm women since they were involved in farming activities and often joined with their husbands in performing different agricultural operations. They required training on method of sowing, transplanting, harvesting and knowledge on developed storage techniques to avoid loss.

Thamaraiselvi (1989) revealed that the small and marginal farmers preferred training in areas like weed control, plant diseases, plant protection and pest control.

Subashini (1990) concluded that big farmers needed training only in plant protection while small and marginal farm women needed training in plant protection and manuring.

Camillus (1991) indicated that pest control, plant diseases protection, weed control, nursery management, manure and fertilizer application on improved varieties of chillies were most preferred areas of training by farm women.

Prasad and Mrutyunjayan (1992) found among the major areas of training need of tribal farmers land preparation ranks first followed by seeds and sowing, post harvest technology, weed control, nursery preparation, water management, fertilizer management, insect and disease control and transplanting.

Nand *et al.* (1994) reported that farmers needed training in selection of seeds, insect and pest control, fertilizer application and seed treatment.

2.10 Constraints experienced by rice farmers

Tripathy *et al.* (1982) while analysing the constraints in the adoption of high yielding rice technology reported that poor germination per centage of government supplied seeds and not demonstrating the improved techniques sufficiently were the main hurdles faced by farmers.

Waghmare and Pandit (1982) found that lack of knowledge, lack of technical guidance, unawareness of use of plant protection chemicals and high cost of chemical fertilizers were the important constraint faced by the farmers.

Sherwani (1983) opined that one of the most common problems faced by a women was the dual role she had to play at the domestic front and work floor.

Pilliair (1985) revealed that lack of intensive extension services, inadequate supply of inputs, lack of knowledge and lack of credit facility are the constraints experienced by weaker sections.

Prakash (1989) identified small sized holdings, high wage rate, incidence of pests and diseases and non availability of inputs in time as the major constraints in rice production.

Tantray and Nanda (1991) reported that the major constraints felt by rice farmers in employing the full potential of advanced technology were economic difficulties and lack of timely input availability.

Rajula Devi (1992) stated that women suffer from severe deprivation and lack access to resources necessary to improve their lot.

Hypotheses developed for the study

Based on the theoretical orientation and review of literature, the following null hypothesis were formulated.

1. There would be no significant difference among the four categories of rice farmers with regard to role perception in rice farming activities.

2. There would be no significant difference among the four categories of rice farmers with regard to role perception in decision making.

3. There would be no significant difference among the four categories of rice farmers with regard to role performance in rice farming activities.

4. There would be no significant difference among the four categories of rice farmers with regard to role performance in joint and independent decision making.

5. There would be no positive and significant relationship between independent variables and role perception and performance in rice farming activities among four categories of rice farmers.

6. There would be no positive and significant relationship between independent variables and role perception and performance in decision making among four categories of rice farmers.

7. There would be no significant difference among the four categories of rice farmers with regard to personal and psychological characteristics.

METHODOLOGY

METHODOLOGY

This chapter deals with the materials used and methods employed in this study and the same are presented in the following sections.

3.1 Locale of the study

This study was confined to Thiruvananthapuram district of Kerala State. Since the subdivision system in the stratification of the state has been changed, taluks were selected for the purpose of study.

3.2 Sampling procedure employed

Stratified three stage random sampling technique was adopted for the study. From Thiruvananthapuram district three taluks viz., Thiruvananthapuram, Chirayankil and Neyyattinkara were randomly selected for the study this formed the first stage. From each taluk, one block was randomly selected viz., Kazhakottum from

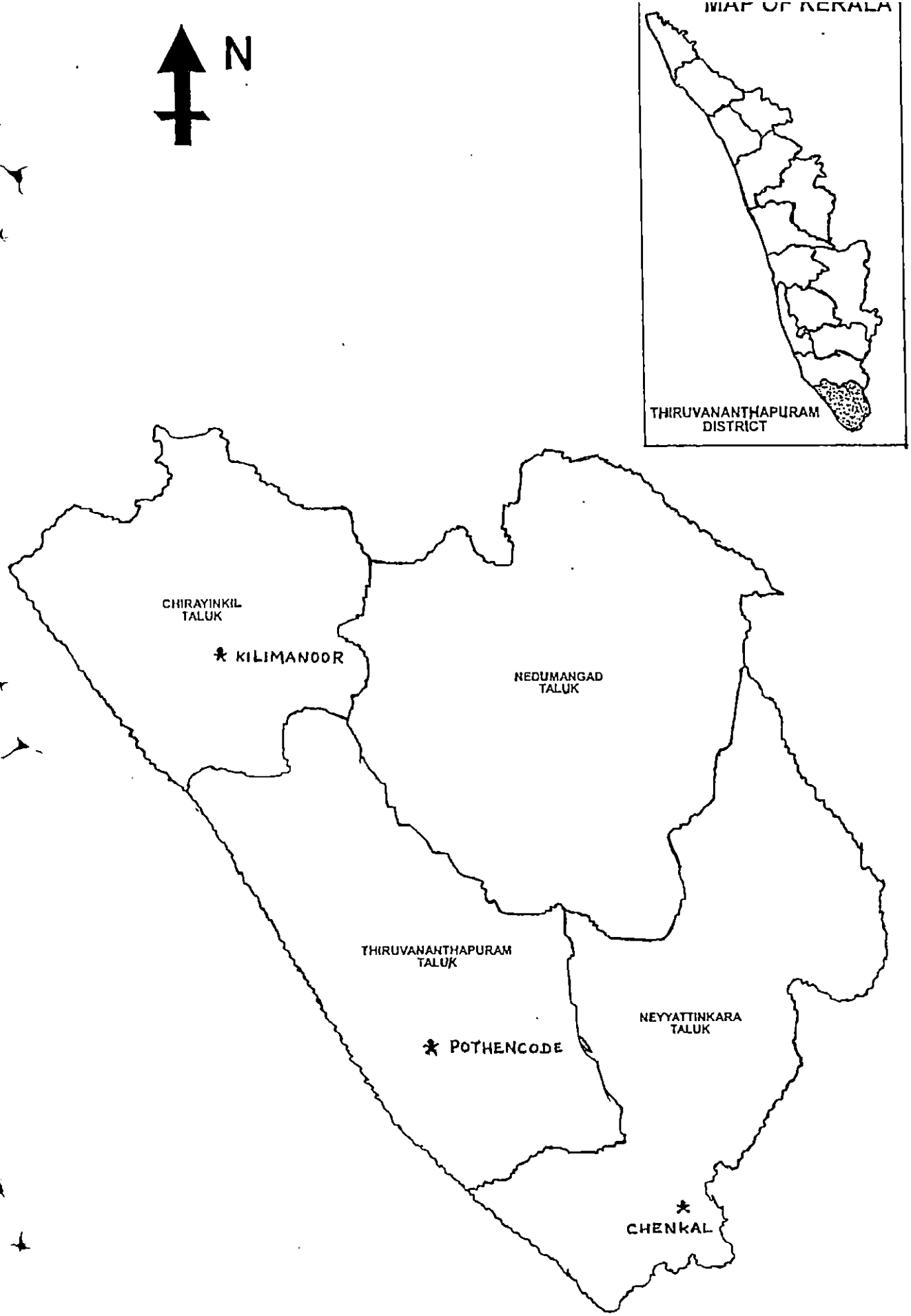


Fig.2. Map showing the location of the study - Thiruvananthapuram District

Thiruvananthapuram, Attingal from Chirayankil and Parassala from Neyyattinkara, which formed the second stage.

From each block one panchayat was selected randomly, this formed the third stage. The selected panchayats were Pothencode, Kilimanoor and Chenkal from Kazhakottum, Attingal and Parassala blocks respectively. The selection of areas were mainly based on the area under rice cultivation.

3.2.1 Selection of respondents

From each selected panchayat 60 farmers were selected at random. Of these both male and female headed households were considered. From the female headed house two categories of households were included. First category of female headed household is one in which the male partner is permanently absent due to separation, death or women who are legally single, divorced or widowed. The second category is one in which the male partner is temporarily absent, here female is not the legal household head. Twenty female heads, ten each from two categories and 40 respondents from male headed farm families both male and female in the family were selected. Thus the total sample comprised of one hundred and eighty farmers.

3.3 Measurement of variables

This part included a review of methods of measurement of variables already used by different researchers and the empirical measures used in this study.

3.3.1 Measurement of dependent variables

3.3.1.1 Role perception in rice farming activities

Role perception is operationally defined as the person's indication of what he feels important to do with respect to a particular practice in rice farming.

In the present study role perception of rice farmer was measured using the method followed by Alex (1994). The response namely 'Very important', 'Important', and 'Not important'. The scoring was done as follows.

Category	Score
Very important	2
Important	1
Not important	0

The aggregate score of each respondent was obtained by summing up the scores for each item.

3.3.1.2 Role perception in decision making

This is operationally defined as the thinking and feeling function of the rice farmer towards decision making regarding rice farming.

Seema (1986) has measured the role perception of farm women in the decision making process by collecting the responses on a three point continuum given against a set of decision making process.

In the present study, the selected roles in rice production were administered to the rice farmers and they were asked to indicate their responses regarding their role perception in decision making on a three point continuum namely 'Very important', 'Important', and 'Not important'. The scoring was done as follows.

Category	Score
Very important	2
Important	1
Not important	0

3.3.1.3 Role performance in rice farming activities

Role performance is operationally defined as the action function performed by a rice farmer towards rice production process.

First an item pool of roles which a rice farmer can perform in rice farming was prepared by reviewing literature like package of practices, bulletins, journals and other publications and by discussing with subject matter specialists and extension personnel of Kerala Agricultural University. Finally 38 items related to rice farming and livestock were selected and translated into malayalam, the regional language of Kerala.

49

Shilaja (1990) measured the role performance of farm women in which each role item was rated on a four point continuum namely 'Most often', 'Often', 'Sometimes' and 'Never'. Scoring of these responses was in the order 3, 2, 1 and 0 for 'Most often', 'Often', 'Sometimes' and 'Never' respectively. The aggregate score of each respondent was obtained by adding the respective score for each item.

3.3.1.4 Role performance in decision making

This was operationalised as the action function performed by the rice farmers in relation to decision making in rice farming.

Flanagon (1954) has developed critical incident technique to measure the role performance of leaders which has been used by Singh (1973) to measure the role performance of key communicators.

In this study the above method was used. A list of 32 decision making areas pertaining to rice farming and livestock were selected by reviewing literature and by discussing with subject matter specialists of Kerala Agricultural University. The selected items were measured both as joint decision making and independent decision making. The scoring pattern followed were as follows.

50

Category	Score
Always	2
Sometimes	1
Never	0

The aggregate score of each respondent was obtained by adding the respective score for each item.

3.3.2 Selection and measurement of independent variables

Based on the review of literature, a list of 33 variables that could possibly influence the role perception and role performance were prepared. The list was sent to 50 judges for relevance rating. The judges were drawn from the field of Agricultural extension of Kerala Agricultural University, TNAU, APAU, HAU, IARI and UAS, Bangalore. They were requested to evaluate the variables and indicate the relevance of each variable on a three point continuum namely 'Most relevant', 'Relevant', and 'Not relevant' with weightage of 2, 1 and 0 respectively.

Based on the responses of the thirty judges, coefficient of relevancy was worked out. The independent variable which had 60 or more as percentage score was included in the study. The independent variables thus selected were

3.3.2.1 **Personal variables**

1. Age
2. Caste
3. Educational status
4. Occupation
5. Size of holding
6. Farming experience
7. Annual income

3.3.2.2 **Psychological variables**

1. Self confidence
2. Self concept
3. Scientific orientation
4. Economic motivation
5. Value orientation
6. Risk orientation
7. Innovation proneness
8. Attitude towards rice based farming system
9. Extent of adoption

3.3.2.3 **Extension communication variables**

1. Contact with extension agency
2. Exposure to mass media
3. Cosmopoliteness
4. Knowledge in rice farming

3.3.3 Operationalisation and measurement of Independent variables

3.3.3.1 Personal variables

3.3.3.1.1 Age

Age was measured as the number of years completed by the respondents at the time of interview. This was measured directly by asking the respondent their age in terms of completed years.

3.3.3.1.2 Caste

In this study caste refers to the caste hierarchy of the rice farmers whether they belong to the upper / backward / scheduled caste.

The categorisation followed in the census report (1981) was adopted in this study. All the respondents in the sample were classified into following categories and scores were assigned as indicated against each.

Forward - Nair, Brahmins and Christians

Backward - Ezhava, Muslims, Nadar and Anglo Indians

Scheduled - Parayas, Pulayas, Thandar, Kuravas and Vedas.

Forward caste farmers were given a score of '3', backward caste a score of '2', and scheduled caste '1'.

3.3.3.1.3 Educational status

It is the level of formal education attained by the respondent.

Educational status was measured using the scoring system followed by Trivedi (1963). The scoring system used was as follows.

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

3.3.3.1.4 Occupation

It is operationalised as the position of rice farmer which acts as a source of income in which the farmer spends major part of his time and attention.

In the present study; occupation was measured using an arbitrary scale developed for the study. The scoring pattern was as follows.

Category	Score
Agricultural labour	1
Farming	2
Business	3
Independent profession	4
Government service	5

3.3.3.1.5 Size of holding

This is defined as the total land area possessed by the rice farmer in acres. The area under wet land and garden land were measured separately.

3.3.3.1.6 Farming experience

It is operationally defined as the number of years the rice farmer has been engaged in farming.

This was measured by directly asking the respondent for how many years they have been engaged in rice farming.

3.3.3.1.7 Annual income

It refers to the total earnings of the family from both farm and non-farm sources for one year.

This was obtained by directly asking the respondent the total income of the family for one year (1996-1997).

3.3.3.2 Extension communication variables

3.3.3.2.1 Contact with extension agency

This is operationally defined as the frequency with which a rice farmer comes in contact with the extension agency in a specified period of time.

In this study the frequency with which a rice farmer comes in contact with different personnels such as Agricultural Demonstrator, Agricultural Officer, Agricultural Scientist were measured. The frequencies of contact were categorised as 'once in a week', 'once in a month', 'occasionally' and 'never' with scores of 3, 2, 1 and 0 respectively. the total score ranges from o to 9.

3.3.3.2.2. Exposure to mass media

It refers to the frequency of reading news paper, listening to broadcast or telecast, reading farm magazines and other literature related to agriculture.

In the present study, exposure to mass media was measured using an arbitrary scale developed for the study. The scoring system used was as follows.

Item	Score
1. a) Do your family own radio ?	
	Yes : 1
	No : 0
b) Do you hear radio ?	
	Yes : 1
	No : 0
c) Do you hear agricultural programmes ?	
	Always : 2
	Sometimes : 1
	Never : 0
2. a) Do your family subscribe News paper ?	
	Yes : 1
	No : 0
b) Do you read News paper ?	
	Yes : 1
	No : 0
If Yes,	
c) Do you read agricultural news ?	
	Always : 2
	Sometimes : 1
	Never : 0
3. a) Do your family subscribe farm magazines ?	
	Yes : 1
	No : 0
b) Do you read farm magazines ?	
	Always : 2
	Sometimes : 1
	Never : 0
4. a) Do your family possess television ?	
	Yes : 1
	No : 0

If yes,

b) Do you see television programme ?

Yes : 1

No : 0

If yes,

c) Do you see programmes related to agriculture ?

Always : 2

Sometimes : 1

Never : 0

The score obtained for each item was summed up to arrive at the individual total score for exposure to mass media. The possible score ranges from 0 to 15.

3.3.3.2.3 Cosmopoliteness

Cosmopoliteness refers to the degree to which the rice farmer is oriented to his immediate outside social system.

In this study, the respondents were asked whether they have visited the neighbouring village or town. The response were collected on a dichotomous pattern 'Yes' or 'No' to which score of 1 and 0 were assigned respectively. To measure the frequency of visit the following scoring pattern was followed.

Frequency	Score
Most frequently	3
Frequently	2
Sometimes	1
Never	0

The purpose of visit was also considered in measuring cosmopoliteness. If the visit is for agricultural purpose a score of '3', was given and for personal purpose a score of '2', and for entertainment a score of '1', was given. The individual score on cosmopoliteness was calculated by summing up the scores on all the three aspects explained above.

3.3.3.2.4 Knowledge in rice farming

In the present study, knowledge refers to the information possessed by a rice farmer regarding rice cultivation aspects.

Sankariah and Singh (1967) measured knowledge of the respondents about improved methods of vegetable cultivation based on teacher made test.

Similarly teacher made tests were used by Prasad (1978) for measuring the knowledge of the farmers in rice farming.

The scale consists of ten questions which the respondents have to answer. A score of one was assigned to the correct answer and zero to wrong answer. The sum of scores obtained for all items indicated the knowledge score of a respondent. The total score ranged from 1 to 10. If the question contain 2 sub item and if respondent answer only one item a score of 0.5 was assigned for that question.

3.3.3.3 Psychological varaibles

3.3.3.3.1 Self confidence

It is operationally defined as the extent of feeling about one's own powers, abilities and resourcefulness to perform any activity which the rice farmer desires to undertake.

This variable was measured using the scale developed by Pandyaraj (1978) for measuring the level of self confidence of a rice farmer. The scale consists of eight items. The respondents were asked to state their response in a five point continuum ranging from 'strongly agree' to 'strongly disagree'. The scoring method followed was as follows for positive statement.

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

The scoring pattern was reversed in the case of negative items. Self confidence for each individual was calculated by summing up the scores. The score ranges from 8 to 40.

3.3.3.3.2 Self concept

Self concept refers to the set of cognition and feelings that a rice farmer has about himself as a farmer.

In the present study self concept was measured by using the scale developed by Joseph (1983) with slight modification. The scale consisted of eight statements. The statements were rated on a five point continuum. The scoring pattern was as follows.

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

Total score for each of the respondent was worked out by summing up the scores on all the items. The possible score ranges from 8 to 40.

3.3.3.3.3 Scientific orientation

Scientific orientation is operationally defined as those aspects of rice farmers orientation, which commits the farmers to the observance of certain scientific principles, which directly influence their behaviour.

In the present study to measure scientific orientation the scale developed by Supe (1969) was used. This scale consists of six items. Responses were collected on a three point continuum with the response categories being 'Agree', 'Undecided' and 'Disagree'. A score of 3, 2 and 1 was allotted to the response categories of positive statements and 1, 2 and 3 for negative statements. The total score was taken by adding up the scores obtained by the farmer for the different statements. The maximum and minimum score were 18 and 6 respectively.

3.3.3.3.4 Economic motivation

Economic motivation refers to the rice farmers overall assessment of their concern for wishes and hope for the future.

Economic motivation was measured by using the scale developed by Supe (1969). This scale consisted of 6 statements of which five were positive and one negative. Responses were collected on a five point continuum with scores as follows.

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

The scoring pattern was reversed for negative items. By summing up the scores over the items the economic motivation of the respondents was obtained. The score ranges from 6-30.

3.3.3.3.5 Value orientation

It refers to the degree to which a respondent is oriented towards the observance of certain norms, standards, criteria for situation whenever a contingent situation to make a choice arises.

Hasan (1972) developed a scale to measure the value orientation, liberalism and fatalism of scientists. For this study the scale developed by Hasan is used to measure the value orientation of farmers. The response to the twelve statements were obtained in a five point continuum. The scoring pattern followed were as follows.

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

The scoring pattern was reversed for negative statements. The minimum and maximum scores were 12 and 60 respectively.

3.3.3.3.6 Risk orientation

Risk orientation refers to the degree to which a rice farmer is oriented towards risk and uncertainty and has courage to face problems in farming.

For the purpose of the study the scale developed by Supe (1969) is used to measure the risk orientation of farmers. This scale consists of six items. These items were measured in three point continuum as 'Agree', 'Undecided' and 'Disagree;. The scores allotted was 3, 2 and 1 for positive statements and 1, 2 and 3 for negative statements. The minimum and maximum score ranges from 6 and 18.

3.3.3.3.7 Innovation proneness

This is operationally defined as the desire expressed by a rice farmer to do something were for the sake of their own rather than to gain power, recognition or profit.

This was measured by using the Moulik and Rao's (1965) forced choice method of self rating as followed by Gowda (1983). This scale consists of three sets of statements. Each set of statements contained three short statements with weights 3, 2 and 1 indicating high, medium and low degree of innovation proneness. The forced choice method was followed to overcome the familiar problems of personal bias and lack of objectivity in self evaluation. This method forced the respondents to

choose from a group of three short statements describing a particular personality characteristics, the one which more accurately describe the respondent himself and also the one which least accurately portray the respondent himself.

After obtaining the respondents most and least choices for each of the three sets of statements the scoring was done by summing up the ratios of the weight of the 'most like' statements to the weights of the 'least like' statements. As there were three sets of statements for innovation proneness scale, the sum of the ratios for the three sets was the self rating score for innovation proneness.

3.3.3.3.8 Attitude of farmers towards rice based farming system

The term attitude refers to the degree of positive or negative affect towards a psychological object. In the present study, the attitude of rice farmers towards rice based farming system was constructed using Likert's method of summated rating.

Collection of items

The items to be included in the attitude scale was obtained through review of literature related to rice based farming system and discussion with experts of Kerala Agricultural University. In total 45 statements relating to different aspects of rice based farming system were collected.

Editing of the statements

The statements thus selected were carefully edited in accordance with criteria suggested by Edwards (1957) so as to indicate both favourable and unfavourable attitudes towards rice based farming system. In order to know the relevance of each of the statements, the statements thus selected were subjected to judges rating. The responses were obtained in a four point continuum viz., 'very much relevant', much relevant', 'somewhat relevant' and 'not relevant' with weightage of 4, 3, 2 and 1 respectively. The relevance of each one of these statements were analysed and only those statements considered relevant by more than 50 per cent of the judges were included for the study.

Item analysis

For the purpose of item analysis, the statements were first administered to 100 non sample respondents, and they were requested to respond to each statement in terms of their own agreement or disagreement with the statement on a five point continuum namely 'Most favourable', 'Favourable', 'Undecided', 'Unfavourable' and 'Most unfavourable'.

The responses were assigned numerical weights as follows for positive statement.

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

The scoring pattern was reversed for negative statements. The respondents scores were arranged in descending order. Twenty five per cent of the respondents with highest scores and twenty five per cent of the respondents with lower scores were selected from among the respondents. These two groups formed the criterion groups in terms of which evaluation of individual statements, 't' value was computed for each statement using the formula,

$$t = \frac{\bar{X}_H - \bar{X}_L}{\sqrt{\frac{S_H^2}{n_H} + \frac{S_L^2}{n_L}}}$$

Where,

X_H - the mean score on a given statement for the high group.

X_L - the mean score for the same statement for the low group

S_H^2- the variance of the distribution of responses of the high group to the statement

S_L^2- the variance of the distribution of responses of the low group to the statement

n_H - the number of subjects in the high group

n_L - the number of subjects in the low group

From this statements with 't' values above 1.75 were selected. Finally 13 statements were selected for inclusion in the scale construction which consists of five negative and eight positive statements.

Reliability of the scale

A scale is said to be reliable only when it will consistently produce the same or similar results when applied to the same sample. Here, the reliability was tested by means of split-half method as detailed below.

The scale was administered to 30 non-sample respondents. The summation of scores obtained by odd numbered items and the summation of scores obtained by even numbered items of the scale for each respondent were correlated by using the Pearsons product-moment correlation coefficient. The coefficient of internal consistency 'roe' was worked out using the formula,

68

$$roe = \frac{Pxy}{\sigma x \times X \sigma y}$$ where,

roe - correlation between odd and even numbered item scores

ρ xy - product moment of odd and even numbered item scores

σx - Standard deviation of the distribution of odd numbered item scores

σy - Standard deviation of the distribution of even numbered item scores.

The roe value obtained will give half test reliability. Therefore it was corrected using the Spearman-Brown prophecy formula and thus obtained the reliability r_{tt} for the total length of the scale.

The formula was

$$rtt = \frac{2 \text{ roe}}{1 + \text{roe}}$$

The obtained rtt value 0.81 was highly significant and thus the reliability was established.

Validity of the scale

It is the fidelity with which the scale measures, what it intends to measure. The scale was tested for content validity as well as construct validity.

Content validity

The main criterion for content validity is how well the content of the scale represents the subject matter under consideration since the items for the scale were selected from the universe of contents it was ensured that the items covered all the aspects of rice based farming system.

Construct validity

It is the degree to which a measurement of a given concept, when employed in research is able to yield an entire set of relationships that makes a good theoretical sense to the researcher.

In the present study, construct validity was tested by calculating the correlation coefficient between attitude and scientific orientation. The attitude and scientific orientation scores of 30 farmers were measured and a correlation of 0.90 was obtained, which was highly significant. Hence it was concluded that the scale had construct validity as well.

Administering the scale

The final scale with five negative and eight positive statements was administered to the sample of rice farmers under study and the responses were collected on a five point continuum namely 'Strongly

agree', 'Agree', 'Undecided', 'Disagree' and 'Strongly disagree' with scores of 5, 4, 3, 2 and 1 respectively for positive statements. The same procedure was reversed in case of negative statements. The scores of all the 13 statements were summated to get the attitude score of each individual. The possible score ranges from 13 to 65.

3.3.3.3.9 Extent of adoption

Several methods have been used to quantify the adoption behaviour by various research workers

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 operator. Because of the differential nature of practice he suggest differential weights in the adoption index.

Marsh and Coleman (1954) also used a practice adoption score computed as the percentage of applicable practices adopted.

Fliegal (1956) constructed an index of adoption of farm practices using the correlation of several adoption variables. He further analysed each of the practices selected, non adoption was given a value of '0' and adoption a score of '1'.

Chattopadhayay (1963) has constructed an adoption quotient to measure farm practices adoption. He has taken into consideration the different variables like potentiality, extent, weightage and time for developing the adoption quotient.

In this study, adoption of improved agricultural practices of paddy were measured by the adoption quotient as developed by Chattopadhyay (1963) and as used by Jaiswal and Dave (1972) with slight modification. The data regarding extent of adoption of improved cultivation practices of paddy recommended by Kerala Agricultural University were obtained. In calculating the adoption quotient, the following practices were considered.

1. Area of high yielding variety sown
2. Seed rate
3. Seed treatment
4. Spacing
5. Use of farm yard manure
6. Chemical fertilizers, weedicide and plant protection chemicals

An adoption quotient was worked out using the following formula

$$AQ = \frac{e_1/p_1 + e_2/p_2 + e_3/p_3 + e_4/p_4 + e_5/p_5 + e_6/p_6 + e_7/p_7 + e_8/p_8}{N} \times 100$$

Where,

e_1 - Summation of the extent of adoption of area under high yielding variety

p_1 - Summation of the potentiality for the adoption of area under high yielding variety

e_2 - Summation of extent of adoption of seed rate

p_2 - Summation of potentiality of adopting seed rate

e_3 - Summation of extent of adoption of seed treatment

p_3 - Summation of potentiality of adopting seed treatment

e_4 - Summation of extent of adoption of spacing

p_4 - Summation of potentiality of adopting spacing

e_5 - Summation of extent of adoption of farm yard manure

p_5 - Summation of potentiality of adopting farm yard manure

e_6 - Summation of extent of adoption of weedicide

p_6 - Summation of potentiality of adopting weedicide

e_7 - Summation of extent of adoption of chemical fertilizer

p_7 - Summation of potentiality of adopting chemical fertilizer

e_8 - Summation of extent of adoption of plant protection chemical

p_8 - Summation of potentiality of adopting plant protection chemical

N - Total number of practices

3.4 Identification of training need and constraints

3.4.1 Training needs of rice farmers

In this study training need refers to the perception of rice farmer about the extent to which they require training in rice farming.

73

Areas in which farmers needs training were obtained after referring literature and by discussing with experts of Kerala Agricultural university and some non-sample rice farmers. Finally 14 training areas were identified. The response of the farmers were obtained on a four point continuum namely viz., 'Very much needed', 'Much needed', 'Needed' and ' Not needed' with scores of 4, 3, 2 and 1 respectively. The frequency of responses in each area were found out.

3.4.2 Constraints experienced by rice farmers

One of the objective of the study was to identify the constraints, experienced by the rice farmer with regard to rice farming.

Ten constraints regarding to rice farming were identified based on the discussion with experts of Kerala Agricultural University and reviewing literature and also by discussion with a sample of rice farmers in non sample area. The responses of rice farmers selected for the present study were collected on dichotomous response category viz., 'Agree', and 'Disagree' and a score of '1' and '0' was assigned. Based on the responses, the frequency for each one of the constraints were worked out.

3.5 Data collection procedure

An Interview Schedule was prepared in English and translated to Malayalam for collecting data from the respondents.

The data collection was done during the months of April-May, 1997. All the 180 respondents were directly interviewed by the researcher. The respondents were contacted in their respective houses and a rapport was established. Personal care has been taken by the researcher inorder to eliminate unbiased and incorrect information from the respondents.

3.6 Statistical tools used

For simple comparisons in the study statistical tools like mean, frequency and percentage analysis were used.

3.6.1 Simple correlation analysis

To study the relationship between independent variables with each dependent variable (role performance and role perception) correlation analysis was done.

3.6.2 Analysis of Variance (ANOVA)

ANOVA test was used to compare the difference between the groups with respect to their selected characteristics.

3.6.3 Kruskal - Wallis test

Kruskal - Wallis test was employed for comparing the four groups of rice farmers with respect to role performance and role perception in rice farming activities and decision making.

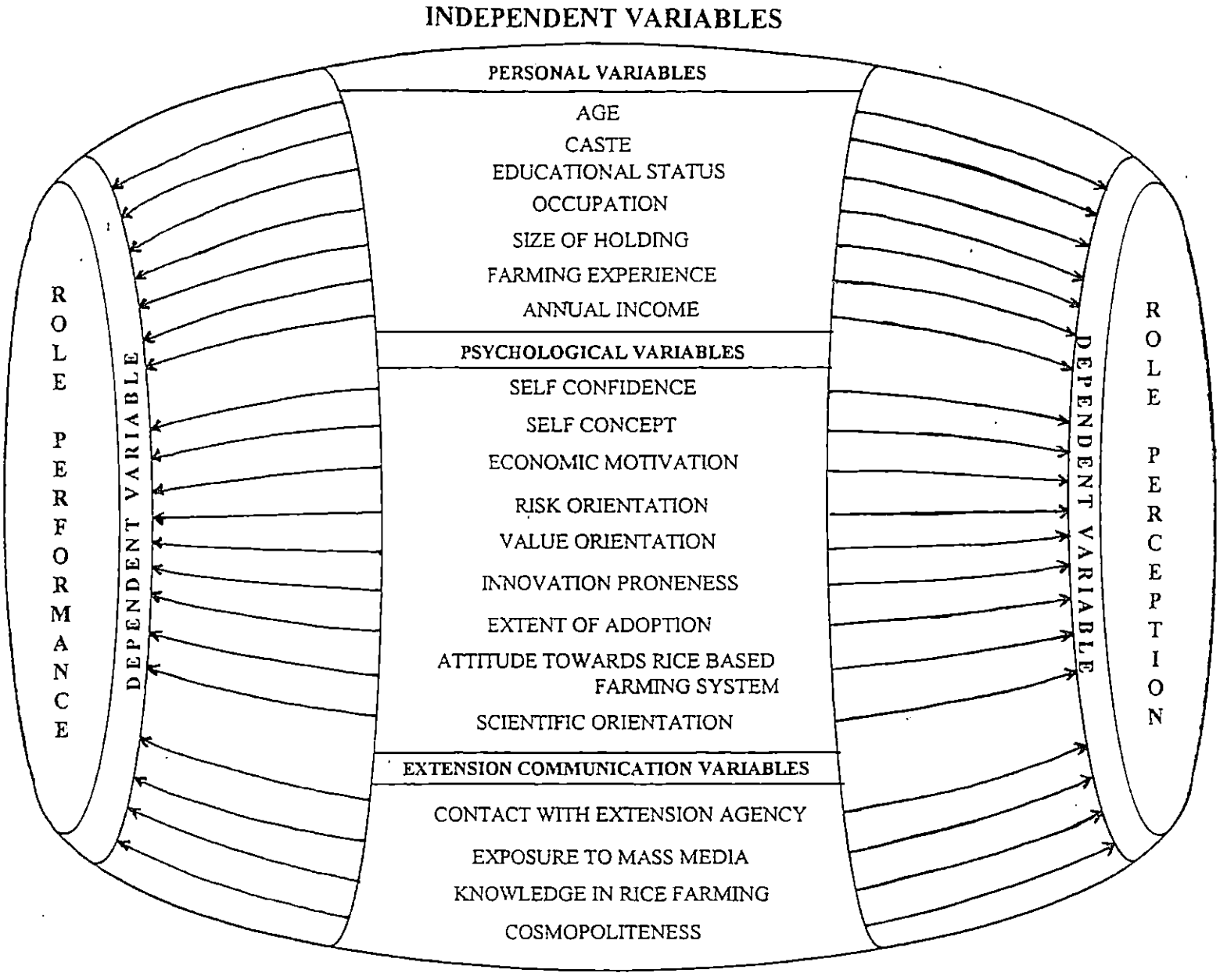


Figure 1 : CONCEPTUAL MODEL FOR THE STUDY

RESULTS AND DISCUSSION

RESULTS AND DISCUSSION

The results of the study are presented under the following main heads.

4.1 Role perception of rice farmers in rice farming activities

4.2 Role perception of rice farmers in decision making

4.3 Role performance of rice farmers in rice farming activities

4.4 Role performance of rice farmers in decision making

4.5 Comparison of rice farmers based on role perception and performance with regard to activities and decision making

4.6 Profile analysis of rice farmers

4.7 Comparison of rice farmers based on selected personal and psychological characteristics

4.8 Relationships of selected characteristics with dependent variables

4.9 Training needs of rice farmers

4.10 Constraints experienced by the rice farmers

4.1 Role perception of rice farmers in rice farming activities

4.1.1 Role perception of men in men headed household in rice farming activities

A critical examination of the Table 1 shows that majority of the respondents perceived that they should involve in activities such as ploughing the main field (80%), levelling (85%), puddling (78.33%),

Table 1 Role perception of men and women in men headed household in rice farming activities

Sl. No.	Roles	Men in men headed household (n = 60)						Women in men headed household (n = 60)					
		Very important		Important		Not important		Very important		Important		Not important	
		No	%	No	%	No	%	No	%	No	%	No	%
1	Preparation of nursery bed	20	33.33	19	31.67	21	35.00	24	40.00	13	21.67	23	38.33
2	Seed treatment with fungicides	13	21.67	21	35.00	26	43.33	13	21.67	12	20.00	35	58.33
3	Sowing seeds in nursery bed	12	20.00	14	23.33	34	56.67	21	35.00	15	25.00	24	40.00
4	Maintaining water depth in nursery	35	58.33	19	31.67	6	10.00	5	8.33	3	5.00	52	86.67
5	Pulling out seedlings from nursery bed	18	30.00	6	10.00	36	60.00	36	60.00	10	16.67	14	23.33
6	Ploughing the mainfield	48	80.00	7	11.67	5	8.33	-	-	-	-	60	100.00
7	Puddling	47	78.33	11	18.33	2	3.33	-	-	-	-	60	100.00
8	Levelling	51	85.00	7	11.67	2	3.33	-	-	1	1.67	59	98.33
9	Trimming and plastering the field bunds	40	66.67	15	25.00	5	8.33	2	3.33	-	-	58	96.67
10	Spreading the farm yard manure and green manures in the mainfield	41	68.33	9	15.00	10	16.67	10	16.67	6	10.00	44	73.33
11	Transplanting	13	21.67	9	15.00	38	63.33	30	50.00	5	8.33	25	41.67
12	Irrigating the mainfield	40	66.67	17	28.33	3	5.00	10	16.67	6	10.00	44	73.33
13	Forming drainage channels	37	61.67	15	25.00	8	13.33	5	8.33	7	11.67	48	80.00
14	Gap filling	26	43.33	20	33.33	14	22.33	17	28.33	10	16.67	33	55.00
15	Plugging the rat holes	20	33.33	17	28.33	23	38.33	18	30.00	11	18.33	31	51.67
16	Application of manures and fertilizers	42	70.00	11	18.33	7	11.67	16	26.67	19	31.67	25	41.67
17	Scaring birds	16	26.67	16	26.67	28	46.67	30	50.00	15	25.00	15	25.00
18	Weeding	11	18.33	18	30.00	31	51.67	43	71.67	11	18.33	6	10.00
19	Harvesting	17	28.33	15	25.00	28	46.67	35	58.33	8	13.33	17	28.33
20	Stackling and bundling the harvested produce	24	40.00	15	25.00	21	35.00	25	41.67	14	23.33	21	35.00
21	Transporting the harvested produce to threshing floor	18	30.00	20	33.33	22	36.67	20	33.33	16	26.67	24	40.00
22	Threshing	10	16.67	10	16.67	40	67.67	28	46.67	11	18.33	21	35.00
23	Winnowing	3	5.00	15	25.00	42	7.00	45	75.00	10	16.67	5	8.33
24	Drying	4	6.67	11	18.33	45	75.00	48	80.00	6	10.00	6	10.00
25	Dehusking	33	55.00	6	10.00	21	35.00	43	71.67	8	13.33	9	15.00
26	Processing of seeds	11	18.33	12	20.00	27	45.00	32	53.33	8	13.33	19	31.67
27	Storage of dried seeds	18	30.00	16	26.67	26	43.33	44	73.33	9	15.00	7	11.67
28	Supervising the labourers	32	53.33	9	15.00	19	31.67	36	60.00	10	16.67	14	23.33
29	Preparing and carrying food for labourers in the field	15	25.00	3	5.00	42	70.00	38	63.33	6	10.00	16	26.67
30	Marketing the produce	37	61.67	10	16.67	13	21.67	16	26.67	5	8.33	39	65.00
31	Management of milch and draught animal	22	36.67	14	23.33	24	40.00	53	58.33	5	8.33	2	3.33
32	Maintenance of cattle shed	15	25.00	12	20.00	33	55.00	45	75.00	8	13.33	7	11.67
33	Feeding the animals	19	31.67	19	31.67	22	36.67	30	50.00	17	28.33	13	21.67
34	Taking animals for grazing	16	26.67	14	23.33	30	50.00	15	25.00	13	21.67	32	53.33
35	Milking the animals	15	25.00	16	26.67	29	48.33	28	46.67	11	18.33	21	33.00
36	Taking care of sick animals	11	18.33	13	21.67	36	60.00	44	73.33	7	11.67	9	15.00
37	Preparing processed food from milk	5	8.33	4	6.67	51	85.00	47	78.33	3	5.00	10	16.67
38	Marketing of milk and milk products	22	36.67	12	20.00	26	43.33	39	65.00	7	11.67	14	23.33

trimming and plastering the field bunds (66.67%), spreading the farm yard manure and green manure in the field (68.33 %), irrigating the main field (66.67 %), forming drainage channels (61.67 %), application of manures and fertilizers (70 %), marketing the harvested produce (61.67 %), maintaining water depth in nursery (58.33 %), dehusking (55 %) and supervising the labourers (53.33 %) as 'very important'.

More than 30 per cent of the respondents perceived that they should perform the following tasks such as preparation of nursery bed (31.67 %), seed treatment with fungicides (35 %), maintaining water depth in nursery (31.67 %), gap filling (33.33 %), transporting the harvested produce to the threshing floor (33.33 %) and feeding the animals (31.67 %) as 'important'.

Majority of the respondents (above 50 per cent) perceived that it was not their duty to involve in activities like sowing seeds in nursery bed (56.67 %), pulling out seedling from nursery bed (60%), transplanting (63.33 %), weeding (51.67%), threshing (67.67 %), winnowing (70 %), drying (70 %), preparing and carrying food for labourers in the field (70 %), maintenance of cattleshed (55 %), taking animals for grazing (50 %), taking care of sick animals (60 %) and preparing processed food from milk (85 %).

It could be observed from the result that men in this category perceived that all the field related tasks should be performed by them like ploughing, puddling, trimming and plastering the field bunds, spreading the farm yard manure, irrigating the main field and marketing the harvested produce.

As seen from the Table 5, the above roles were actually performed by a great majority of the farmers in this category. Since perception itself is a highly complex process. A person tends to identify a given situation or object in terms of what he is familiar to. So the perception and performance of men farmers is one and the same.

The result is in line with the findings of Tully (1968), Ariffin (1975), Kareem (1984), Seema (1986) and Alex (1994).

4.1.2 Role perception of women in men headed household in rice farming activities

A cursory perusal of the Table 1 revealed that 50 per cent and above of the respondents in this category perceived that they should participate in activities like pulling out seedlings from nursery bed (60%), weeding (71.67%), winnowing (75 %), dehusking (71.67 %), storage of dried seeds (73.33 %), supervising the labourers (60%), maintenance of cattle shed (75 %), management of milch animal and draught animal (58.33 %), taking care of sick animals (73.33 %),

preparing processed food from milk (78.33 %), marketing of milk and milk products (65 %), transplanting (50 %), scaring birds (50 %), harvesting (58.33 %), processing of seeds (53.33 %), feeding the animals (50 %) and perparing and carrying food for labourers in the field (63.33 %).

More than 90 per cent and above of them stated that it is not their duty to perform activities such as levelling (98.33 %) , trimming and plastering of field bunds (96.67 %), puddling (100 %) and ploughing (100 %).

As discussed earlier in Table 5 the women performed most of the tasks related to post harvest and livestock management. It is also evident that the women in this category perform those roles which they perceive as 'very important' for them. Selective perception of the roles by a farmer play a very important part in his involvement in the activities in his own farming situation.

It could be observed from the result that these women did not perceive roles like ploughing, puddling, levelling and trimming and plastering of field bunds. These roles are mostly performed by the masculine gender, in which the involvement of women is meagre. Related results were reported by Sobhana (1982), Seema (1986) and Alex (1994).

4.1.3 Role perception of women in defacto household in rice farming activities

It is evident from the Table 2 that 50 per cent and above of the respondents perceived that their participation should be in areas such as pulling out seedlings from nursery bed (66.67 %), scaring birds (60 %), weeding (63.33 %), winnowing (63.33 %), drying (66.67 %), dehusking (70 %), preparation of nursery bed (50 %), transplanting (50%), processing of seeds (53.33 %), storage of dried seeds (70 %), preparing and carrying food for labourers (63.33 %), management of milch animal (73.33 %), maintenance of cattle shed (63.33 %), milking the animals (50 %), taking care of sick animals (53.33 %) and marketing of milk and milk products (56.67 %).

Majority of the respondents (above 80 per cent) revealed that it is not their duty to perform activities like ploughing the main field, puddling, levelling, maintaining water depth in nursery, trimming and plastering the field bunds and taking care of sick animals. More than 60 per cent of them perceived areas such as seed treatment with fungicides, spreading the farm yard manure and green manure in the main field, irrigating the mainfield, forming drainage channels, transporting the harvested produce to threshing floor and marketing the produce as 'not important'.

Table 2 Role perception of women in defacto and dejuri household in rice farming activities

Sl. No.	Roles	Women in defacto household (n = 30)						Women in dejuri household (n = 30)					
		Very important		Important		Not important		Very important		Important		Not important	
		No	%	No	%	No	%	No	%	No	%	No	%
1	Preparation of nursery bed	15	50.00	5	16.67	10	33.33	12	40.00	11	36.67	7	23.33
2	Seed treatment with fungicides	6	20.00	5	16.67	19	63.33	8	26.67	6	20.00	16	53.33
3	Sowing seeds in nursery bed	10	33.33	5	16.67	15	50.00	13	43.33	8	26.67	9	30.00
4	Maintaining water depth in nursery	3	10.00	2	6.67	25	83.33	3	10.00	-	-	27	90.00
5	Pulling out seedlings from nursery bed	20	66.67	1	3.33	9	30.00	5	50.00	4	13.33	11	36.67
6	Ploughing the mainfield	-	-	-	-	30	100.00	-	-	-	-	30	100.00
7	Puddling	-	-	-	-	30	100.00	-	-	-	-	30	100.00
8	Levelling	-	-	-	-	30	100.00	-	-	-	-	30	100.00
9	Trimming and plastering the field bunds	2	6.67	1	3.33	27	90.00	-	-	1	3.33	29	96.67
10	Spreading the farm yard manure and green manures in the mainfield	5	16.67	3	10.00	22	73.33	-	-	4	13.33	26	86.67
11	Transplanting	15	50.00	3	10.00	12	40.00	15	50.00	4	13.33	11	36.67
12	Irrigating the mainfield	1	3.33	6	20.00	23	76.67	8	26.67	3	10.00	11	36.67
13	Forming drainage channels	5	16.67	5	16.67	20	66.67	4	13.33	2	6.67	24	80.00
14	Gap filling	12	40.00	7	23.33	11	36.67	6	20.00	8	26.67	16	53.33
15	Plugging the rat holes	8	26.67	8	26.67	14	46.67	6	20.00	4	13.33	20	66.67
16	Application of manures and fertilizers	10	33.33	6	20.00	14	46.67	5	16.67	2	6.67	23	76.67
17	Scaring birds	18	60.00	9	30.00	3	10.00	17	56.67	4	13.33	9	30.00
18	Weeding	19	63.33	10	33.33	1	3.33	7	76.67	7	23.33	-	-
19	Harvesting	10	33.33	7	23.33	13	43.33	6	70.00	6	20.00	3	10.00
20	Stackling and bundling the harvested produce	10	33.33	4	13.33	16	53.33	10	43.33	10	33.33	7	23.33
21	Transporting the harvested produce to threshing floor	6	20.00	5	16.67	19	63.33	9	30.00	7	23.33	4	13.33
22	Threshing	11	36.67	3	10.00	16	53.33	13	43.33	7	23.33	10	33.33
23	Winnowing	19	63.33	4	13.33	7	23.33	19	63.33	5	16.67	6	20.00
24	Drying	20	66.67	4	13.33	6	20.00	22	73.33	4	13.33	4	13.33
25	Dehusking	21	70.00	6	13.33	5	16.67	19	63.33	6	20.00	5	16.67
26	Processing of seeds	16	53.33	3	20.00	8	26.67	14	46.67	5	16.67	11	36.67
27	Storage of dried seeds	21	70.00	10	10.00	6	20.00	16	53.33	8	26.67	6	20.00
28	Supervising the labourers	19	63.33	4	33.33	1	3.33	23	76.67	3	10.00	4	13.33
29	Preparing and carrying food for labourers in the field	19	63.33	2	13.33	7	23.33	20	66.67	7	23.33	3	10.00
30	Marketing the produce	6	20.00	7	6.67	23	76.67	9	30.00	5	16.67	16	53.33
31	Management of milch and draught animal	22	73.33	11	23.33	1	3.33	14	46.67	4	13.33	12	40.00
32	Maintenance of cattle shed	19	63.33	6	36.67	-	-	24	80.00	4	13.33	2	6.67
33	Feeding the animals	22	73.33	6	20.00	2	6.67	21	70.00	4	13.33	5	16.67
34	Taking animals for grazing	14	46.67	7	20.00	10	33.33	13	43.33	5	16.67	12	40.00
35	Milking the animals	15	50.00	9	23.33	8	26.67	8	26.67	11	36.67	11	36.67
36	Taking care of sick animals	16	53.33	4	30.00	25	83.33	17	56.67	8	26.67	5	16.67
37	Preparing processed food from milk	19	63.33	5	13.33	7	23.33	23	76.67	3	10.00	4	13.33
38	Marketing of milk and milk products	17	56.67	5	16.67	8	26.67	18	60.00	3	10.00	9	30.00

It could be inferred from the result that majority of the respondents perceived that they should perform roles like transplanting, scaring birds, post harvest operations and all activities related to the management of milch animal. As revealed from Table 6 most of them in this category performed the above said roles. This might be the reason for their high perception in these activities. Roles like ploughing, puddling, levelling, trimming and plastering of field bunds, spreading farm yard manure etc are male dominated task so that they did not perform these tasks. Hence they did not perceive these roles as important to them. Perception could be a determinant of performance (Mitchell, 1978). This statement holds true from the above result.

The findings of the study though not similar is in line with those reported by Tully (1968), Arriffin (1975), Kareem (1984), Seema (1986) and Alex (1994).

4.1.4 Role perception of women in dejuri household in rice farming activities

A view of the Table 2 shows that 50 per cent and above of the respondents perceived roles like weeding (76.67 %), harvesting (70 %), drying (73.33 %), supervising the labourers (76.67 %), feeding the animals (70 %), preparing processed food from milk (76.67 %), winnowing (63.33 %), dehusking (63.33 %), preparing and carrying food for labourers in the field (66.67 %), pulling out seedlings from nursery

bed (50 %), transplanting (50 %), scaring birds (56.67 %), storage of dried seeds (53.33 %), marketing of milk and milk products (60 %) and taking care of sick animals (56.67 %) as 'very important'.

More than 30 per cent and above of them perceived roles like preparation of nursery bed (36.67 %), stacking and bundling of harvested produce (33.33 %) and milking the animals (36.67 %) as 'important'.

Ninty per cent and above of the women perceived that it is not their duty to perform in areas like ploughing the mainfield (100 %), puddling (100 %), levelling (100 %), maintaining water depth in nursery (90 %) and trimming and plastering the field bunds (96.67 %).

From the result it is clear that these women farmers perceived those tasks that are most often performed by them, the tasks were weeding, harvesting, transplanting, scaring birds, post harvest operations and animal management. Since these women are not engaged in male dominated tasks like ploughing, puddling, levelling etc, their perception is also found to be lower in these tasks. The result is in conformity with the findings of Seema (1986) and Alex (1994). In view of the above discussion, the hypothesis that there is no significant difference among the four categories of rice farmers with respect to role perception in rice farming activities was rejected and alternative hypothesis was accepted.

4.2 Role perception of rice farmers in decision making

4.2.1 Role perception of men in men headed household in decision making

A cursory perusal of the Table 3 revealed that 80 per cent and above of the respondents in this category perceived nine areas as 'very important' viz., seed rate to be followed (83.33 %), time of pulling out seedling from nursery bed (80 %), type of ploughing to be done (81.67 %), interval of irrigation to be given (85 %), time of weeding (85 %), number of labourers required for weeding (81.67 %), number of labourers required for harvesting (80 %), method of threshing (88.33%) and quantity of grains to be stored (86.67 %).

Whereas 60 per cent and above of them perceived areas such as choice of the crop and variety (61.67 %), selecting quality seeds (78.33%), method of sowing (76.67 %), chemicals to be used in seed treatment (75 %), number of labourers required for land preparation (73.33 %), spacing to be adopted for planting seedlings (68.33 %), number of labourers required for transplanting (76.67 %), time of applying manures and fertilizers (76.67 %), quantity of manures and fertilizers to be applied (78.33 %), type of fungicides and pesticides to be used (78.33%), place where the fertilizers are to be purchased (75%), time of harvest (78.33 %), quantity of grains to be sold (78.33 %),

Table 3 Role perception in decision making by men and women in men headed household

Sl. No.	Decision making areas	Men in men headed household (n = 60)						Women in men headed household (n = 60)					
		Very important		Important		Not important		Very important		Important		Not important	
		No	%	No	%	No	%	No	%	No	%	No	%
1	Choice of the crop and variety	37	61.67	19	15.00	4	6.67	49	81.67	4	6.67	7	11.67
2	Selecting quality seeds	47	78.33	7	11.67	10	16.67	8	13.33	10	16.67	42	70.00
3	Seed treatment	34	56.67		15.00	17	28.33	3	5.00	5	8.33	52	86.67
4	Methiod of sowing	46	76.67	12	20.00	2	3.33	17	28.33	4	6.67	39	65.00
5	Seed rate to be followed	50	83.33	8	13.33	2	3.33	15	25.00	12	20.00	34	40.00
6	Chemicals to be used in seed treatments	45	75.00	10	16.67	5	8.33	17	28.33	5	8.33	38	63..33
7	Time of pulling out seedling from nuresery bed	48	80.00	10	16.67	2	3.33	22	36.67	4	6.67	34	56.67
8	Type of ploughing to be done	49	81.67	9	15.00	2	3.33	23	38.33	6	10.00	32	53.33
9	Number of labourers required for land preparation	44	73.33	12	20.00	4	6.67	25	43.67	6	10.00	29	48.33
10	Spacing to be adopted for planting seedlings	41	68.33	16	26.67	3	5.00	19	31.67	3	5.00	38	63.33
11	Number of labourers required for transplanting	46	76.67	11	18.33	3	5.00	26	4333	4	6.67	30	50.00
12	Time of applying manures and ferttilizers	46	76.67	0	16.67	4	6.67	30	50.00	5	8.33	25	41.67
13	Quantity of manures and fertilizers to be applied	47	78.33	11	18.33	2	3.33	28	46.67	4	6.67	28	46.67
14	Interval of irrigation to be given	51	85.00	8	13.33	1	1.67	25	41.67	5	8.33	30	50.00
15	Time of weeding	51	85.00	5	8.33	4	6.67	23	38.33	13	21.67	24	40.00
16	Number of labourers required for weeding	49	81.67	6	10.00	5	8.33	26	43.33	4	6.67	30	50.00
17	Type of fungicides and pesticides to be used	47	78.33	10	16.67	3	5.00	23	38.33	1	1.67	36	60.00
18	Place where the fertilizers are to be purchased	45	75.00	13	21.67	2	3.33	27	45.00	3	5.00	30	50.00
19	Time of harvest	47	78.33	8	13.33	5	8.33	35	58.33	7	11.67	18	30.00
20	Number of labourers required for harvest	48	80.00	9	15.00	3	5.00	32	53.33	5	8.33	23	38.33
21	Method of threshing	53	88.33	6	10.00	1	1.67	29	48.33	11	18.33	20	33.33
22	Quantity of grains to be stored	52	86.67	8	13.33	-	-	36	60.00	11	18.33	13	21.67
23	Quantity of grains to be sold	47	78.33	10	16.67	3	5.00	38	63.33	8	13.33	14	23.33
24	Method of processing the seed	43	71.67	14	23.33	3	5.00	40	66.67	6	10.00	14	23.33
25	Marketing the produce	47	78.33	13	21.67	-	-	44	73.33	8	13.33	8	13.33
26	Deciding the expenditure of farm and home	44	73.33	14	23.33	2	3.33	49	81.67	4	6.67	7	11.67
27	Wages to be paid to labourers	39	65.00	15	25.00	6	10.00	46	76.67	6	10.00	8	13.33
28	Type of animal breed to be grown	34	56.67	20	23.33	6	10.00	55	91.67	5	8.33	-	
29	Number of animals to be maintained	36	60.00	18	28.33	7	11.67	52	86.67	6	10.00	2	3.33
30	Care and management of animals	38	63.33	14	23.33	8	13.33	46	76.67	13	21.67	1	1.67
31	Type of feed to be given	37	61.67	15	25.00	8	13.33	43	71.67	13	21.67	4	6.67
32	Marketing the milk and fixing the price	36	60.00	10	16.67	14	23.33	42	70.00	10	16.67	8	13.3

method of processing the seed (71.67 %), marketing the produce (78.33 %), deciding the expenditure of farm and home (73.33 %), wages to be paid to labourers (65 %), number of animals to be maintained (60 %), care and management of animals (63.33 %), type of feed to be given (61.67 %) and marketing of milk and fixing the price of milk (60 %) as 'important'.

From the Table 5 it is clear that the men of this category were involved in almost all the field activities, related to rice farming. It is also found that all the decisions related to these activities were also taken independently by them. Being the head of the farm family they clearly perceived what they were expected to do and performed those roles very efficiently. Thus the performance and the perceptions of the farmers were one and the same.

The result is in conformity with the findings of Kareem (1984), Seema (1986) and Alex (1994).

4.2.2 Role perception of women in men headed household in decision making

A critical view of the Table 3 depicts that 80 per cent and above of the respondents perceived that their participation in taking decisions in areas like choice of the crop and variety(81.67 %), deciding the expenditure of farm and home(81.67%), type of animal breed to be

grown (91.67%), number of animals to be maintained (86.67%) as 'very important'. Fifty per cent and above respondents perceived that it is their duty to take decisions in areas like quantity of grains to be stored (60%), quantity of grains to be sold (63.33%), method of processing the seed (66.67%0, marketing the produce (73.33), wages to be paid to labourers (76.67%), care and management of animals (76.67%), type of feed to be given to animals (71.67%), marketing of milk and fixing the price of milk (70%), time of applying manures and fertilizers (50.%), time of harvest (58.33%) and number of labourers required for harvesting (53.33%).

However 60 per cent and above of the women respondents perceived that it was not so important for them to involve in taking decisions in areas such as selecting quality seeds (70%), seed treatment (86.67%), method of sowing (65%), chemicals to be used in seed treatment (63.33%), spacing to be adopted for planting seedling (63.33%) and type of fungicides and pesticides to be used (60%).

From the Table 8 it is found that the involvement of women in independent decision making in rice farming activities is very limited, whereas they had a high level of involvement with respect to joint decision making in financial aspects of farm, home and animal related tasks. What is inferred from this is that unfamiliarity and lack of involvement have a significant bearing on the perception of any role.

Since the respondents were not involved extensively in farm decision making their perception was also lower in these areas.

The result of this study is in accordance with the findings of Seema (1986) and Alex (1994).

4.2.3 Role perception of women in defacto household in decision making

Analysis of the Table 4 shows that majority of the respondents above (50 per cent) perceived areas such as choice of crop and variety (70%), quantity of grains to be sold (63.33%), method of processing the seed (76.67%), marketing the produce (63.33%), deciding the expenditure of farm / home (63.33%), wages to be paid to the labourers (70%), type of animals to be maintained (63.33%), care and management of animals (63.33%), type of feed to be given (66.67%), selecting quality seeds (50%), seed rate to be followed (50%), number of labourers required for land preparation (53.33%), quantity of manures and fertilizers to be applied (53.33%), interval of irrigation to be given (50%), number of labourers required for harvesting (53.33%), method of threshing(53.33%), quantity of grains to be stored (56.67%), marketing the produce (63.33%) and marketing the milk and fixing the price (56.67%).

Table 4 Role perception in decision making by women in defacto and dejuri household

Sl. No.	Decision making areas	Women in defacto household (n =30)						Women in dejuri household (n = 60)					
		Very important		Important		Not important		Very important		Important		Not important	
		No	%	No	%	No	%	No	%	No	%	No	%
1	Choice of the crop and variety	21	70.00	7	23.33	2	6.67	18	60.00	6	20.00	6	20.00
2	Selecting quality seeds	15	50.00	8	26.67	7	23.33	13	43.33	3	10.00	14	46.6
3	Seed treatment	8	26.67	6	20.00	16	53.33	12	40.00	1	3.33	17	56.67
4	Methiod of sowing	10	33.33	6	20.00	14	46.67	11	36.67	10	33.33	9	30.00
5	Seed rate to be followed	15	50.00	6	20.00	9	30.00	14	46.67	17	33.33	6	20.00
6	Chemicals to be used in seed treatments	10	33.33	12	40.00	8	26.67	12	40.00	7	23.33	11	36.67
7	Time of pulling out seedling from nursery bed	14	46.67	6	20.00	10	33.33	16	53.33	2	6.67	12	40.00
8	Type of ploughing to be done	11	36.67	8	26.67	11	36.67	17	56.67	5	16.67	8	26.67
9	Number of labourers required for land preparation	16	53.33	7	23.33	7	23.33	14	46.67	7	23.33	21	70.00
10	Spacing to be adopted for planting seedlings	11	36.67	6	20.00	13	43.33	10	33.33	5	16.67	15	50.00
11	Number of labourers required for transplanting	13	3.33	10	33.33	7	23.33	15	50.00	5	16.67	10	33.33
12	Time of applying manures and fertilizers	14	46.67	11	36.67	5	16.67	16	53.33	4	13.33	10	33.33
13	Quantity of manures and fertilizers to be applied	16	53.33	8	26.67	6	20.00	14	46.67	4	13.33	12	40.00
14	Interval of irrigation to be given	15	50.00	8	26.67	7	23.33	13	43.33	7	23.33	10	33.33
15	Time of weeding	16	3.33	9	30.00	5	16.67	13	43.33	8	26.67	9	30.00
16	Number of labourers required for weeding	11	36.67	15	50.00	4	13.33	18	60.00	3	10.00	9	30.00
17	Type of fungicides and pesticides to be used	13	43.33	9	30.00	8	26.67	15	50.00	6	20.00	9	30.00
18	Place where the fertilizers are to be purchased	11	36.67	13	43.33	6	20.00	17	56.67	2	6.67	11	36.67
19	Time of harvest	13	43.33	15	50.00	2	6.67	17	56.67	6	20.00	7	23.33
20	Number of labourers required for harvesting	16	53.33	12	40.0	2	6.67	16	53.33	7	23.33	7	23.33
21	Method of threshing	16	53.33	10	33.33.	4	13.33	18	60.00	3	10.00	9	30.00
22	Quantity of grains to be stored	17	56.67	9	30.00	4	13.33	18	60.00	6	20.00	24	80.00
23	Quantity of grains to be sold	19	63.33	7	23.33	4	13.33	14	46.67	6	20.00	10	33.33
24	Method of processing the seed	23	76.67	6	20.00	1	3.33	15	50.00	7	23.33	8	26.67
25	Marketing the produce	19	63.33	9	30.00	2	6.67	18	60.00	6	20.00	6	20.00
26	Deciding the expenditure of farm and home	19	63.33	10	33.33	1	3.33	17	66.67	7	23.33	6	20.00
27	Wages to be paid to labourers	21	70.00	7	23.33	2	6.67	21	70.00	2	6.67	7	23.33
28	Type of animal breed to be grown	19	63.33	11	36.67	-	-	13	43.33	8	26.67	21	70.00
29	Number of animals to be maintained	24	80.00	6	20.00	-	-	15	50.00	5	16.67	10	33.33
30	Care and management of animals	19	63.33	9	30.00	2	6.67	17	56.67	3	10.00	10	33.33
31	Type of feed to be given	20	66.67	9	30.00	1	3.33	23	76.67	4	13.33	3	10.00
32	Marketing the milk and fixing the price	17	56.67	11	36.67	2	6.67	22	73.33	4	13.33	4	13.33

More than 40 per cent of the respondents perceived that, time of pulling out seedlings from nursery bed (46.67%), time of applying manures and fertilizers(46.67%), type of fungicides and pesticides to be used (43.33%)and time of harvest (43.33%) as 'important' areas of their decision making.

A cursory perusal of the result showed that majority of respondents actively participated in majority of areas of both farm and livestock management. As discussed earlier women in this household were consulted by their husbands for all the activities to be carried out in rice farming, so that they had a good experience in rice farming activities. This might be the reason for their high perception regarding the farm decision making. So their participation is closely related to their performance in various activities in rice farming as revealed from Table 9.

The result of this study is in line with the findings of Seema (1984) and Alex (1994).

4.2.4 Role perception of women in dejuri household in decision making

A critical view of the Table 4 shows that 50 per cent and above of the respondents perceived areas like choice of crop and variety (60%), number of labourers required for weeding (60%), method of threshing

(60%), quantity of grains to be stored (60%), marketing the produce (60%), wages to be paid to labourers (70%), type of feed to be given (76.67%), marketing the milk and fixing the price (73.33%), time of pulling out seedling from nursery bed (53.33%), type of ploughing to be done (56.67%), number of labourers required for transplanting (50%), time of applying manures and fertilizers (53.33%), type of fungicides and pesticides to be used (50%), method of processing the seed, , deciding the expenditure of farm and home (66.67%), number of animals to be maintained (50%) care and management of animals (56.67%), place were the fertilizers are to be purchased (56.67%), time of harvest (56.67%) and number of labourers required for harvesting (53.33%) as 'very important'.

Majority of them perceived five areas as 'not important' and they are seed treatment (56.67%), number of labourers required for land preparation (70%), spacing to be adopted (50%) and type of animal breed to be grown (70%).

It could be inferred from the Table 10 that majority of the decisions related to rice farming were solely taken by these women. The women in dejuri household are burdened with both farm and home management due to the permanent absence of their husband. Hence they involved more in farming. Also women in this household had a good

farming experience. This might be the reason for the high perception of these women farmers towards decision making in rice farming.

The result of this study supports the findings of Seema (1986) and Alex (1994). In the light of the above discussion, the hypothesis that there is no significant difference among the four categories of rice farmers with respect to role perception in decision making was rejected and accepted the alternative hypothesis.

4.3 Role performance of rice farmers in rice farming activities

4.3.1 Roles performed by men in men headed household

Table 5 indicates the extent to which the identified roles in rice farming were performed by men farmers in men headed households.

Majority of the men farmers 'most often' performed roles like ploughing the main field (63.33%), puddling (51.67%), levelling (55%), application of manures and fertilizers (56.67%), supervising the labourers (51.67%0 and marketing the produce (56.67%). A great majority of them 'often' performed roles like irrigating the mainfield (43.33%), maintaining water depth in nursery (36.67%), spreading the farm yard manure (35%), forming drainage channels (35%), maintenance of milch animal (38.33%) and marketing of milk and milk products (45%).

Table 5 Roles performed by men and women in men headed household in rice farming activities

Sl. No.	Roles	Men in men headed household (n = 60)								Women in men headed household (n = 60)							
		Most often		Often		Sometimes		Never		Most often		Often		Sometimes		Never	
		No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
1	Preparation of nursery bed	10	16.67	17	28.33	5	8.33	28	46.67	-	-	2	3.33	2	3.33	56	93.33
2	Seed treatment with fungicides	2	3.33	7	11.67	2	3.33	49	81.67	-	-	-	-	-	-	60	100.00
3	Sowing seeds in nursery bed	1	1.67	2	3.33	4	6.67	53	88.33	1	1.67	2	3.33	2	3.33	55	91.67
4	Maintaining water depth in nursery	21	35.00	22	36.67	2	3.33	15	25.00	-	-	1	1.67	-	-	59	98.33
5	Pulling out seedlings from nursery bed	9	15.00	11	18.33	1	1.67	39	65.00	-	-	6	10.00	4	6.67	50	83.33
6	Ploughing the mainfield	38	63.33	10	16.67	1	1.67	11	18.33	-	-	-	-	-	-	60	100.00
7	Puddling	31	51.67	18	30.00	-	-	12	20.00	-	-	-	-	-	-	60	100.00
8	Levelling	33	55.00	16	26.67	-	-	9	15.00	-	-	-	-	-	-	60	100.00
9	Trimming and plastering the field bunds	29	48.33	19	31.67	2	3.33	10	16.67	-	-	-	-	1	1.67	59	98.33
10	Spreading the farm yard manure and green manures in the mainfield	27	45.00	21	35.00	2	3.33	10	16.67	-	-	-	-	-	-	-	-
11	Transplanting	6	10.00	5	8.33	1	1.67	48	80.00	1	1.67	7	11.67	2	3.33	50	83.33
12	Irrigating the mainfield	20	33.33	26	43.33	7	11.67	7	11.67	-	-	-	-	-	-	50	83.33
13	Forming drainage channels	19	31.67	21	35.00	14	23.33	6	10.00	-	-	-	-	-	-	50	83.33
14	Gap filling	9	15.00	17	28.33	17	28.33	43	71.67	1	1.67	2	3.33	-	-	57	95.00
15	Plugging the rat holes	13	21.67	18	30.00	14	23.33	15	25.00	4	6.67	6	10.00	5	8.33	45	75.00
16	Application of manures and fertilizers	34	56.67	15	25.00	2	3.33	9	15.00	2	3.33	2	3.33	-	-	56	93.33
17	Scaring birds	5	8.33	15	25.00	13	21.67	27	45.00	12	20.00	14	23.33	-	-	34	56.67
18	Weeding	5	8.33	14	23.00	13	21.67	28	46.67	8	13.33	18	30.00	15	25.00	19	31.67
19	Harvesting	9	15.00	18	30.00	7	11.67	26	43.33	-	-	10	16.67	18	30.00	32	53.33
20	Stackling and bundling the harvested produce	9	15.00	17	28.33	9	15.00	25	41.67	1	1.67	2	3.33	1	1.67	56	93.33
21	Transporting the harvested produce to threshing floor	3	5.00	10	16.67	7	11.67	40	66.67	1	1.67	-	-	1	1.67	58	96.67
22	Threshing	3	5.00	2	3.33	5	8.33	50	83.33	4	6.67	5	8.33	-	-	51	85.00
23	Winnowing	-	-	4	6.67	3	5.00	53	88.33	24	40.00	27	45.00	4	6.67	5	8.33
24	Drying	3	5.00	4	6.67	-	-	53	88.33	31	51.67	25	41.67	4	6.67	-	-
25	Dehusking	3	5.00	4	6.67	-	-	53	88.33	29	48.33	11	18.33	4	6.67	16	26.67
26	Processing of seeds	29	48.33	13	21.67	2	3.33	16	26.67	8	13.33	8	13.33	4	6.67	40	66.67
27	Storage of dried seeds	6	10.00	17	28.33	1	1.67	36	60.00	30	50.00	18	30.00	3	5.00	9	15.00
28	Supervising the labourers	31	51.67	17	28.33	1	1.67	11	18.33	5	8.33	21	35.00	8	13.33	26	43.33
29	Preparing and carrying food for labourers in the field	11	18.33	5	8.33	-	-	44	73.33	21	35.00	14	23.33	3	5.00	22	36.67
30	Marketing the produce	34	56.67	13	21.67	1	1.67	12	20.00	8	13.33	5	8.33	1	1.67	46	76.67
31	Management of milch and draught animal	11	18.33	23	38.33	6	10.00	20	33.33	28	46.67	26	43.33	4	6.67	2	3.33
32	Maintenance of cattle shed	2	3.33	10	16.67	13	21.67	35	58.3	25	41.67	22	36.67	8	13.33	5	8.33
33	Feeding the animals	6	10.00	15	25.00	14	23.33	25	41.67	23	38.33	11	18.33	6	10.00	20	33.33
34	Taking animals for grazing	11	18.33	12	20.00	7	11.67	30	50.00	5	8.33	5	8.33	5	8.33	45	75.00
35	Milking the animals	6	10.00	13	21.67	8	13.33	33	55.00	10	16.67	12	20.00	9	15.00	29	48.33
36	Taking care of sick animals	8	13.33	16	26.67	7	11.67	29	48.33	15	25.00	26	43.33	6	10.00	13	21.67
37	Preparing processed food from milk	13	21.67	7	11.67	5	8.33	35	58.33	33	55.00	15	25.00	6	10.00	6	10.00
38	Marketing of milk and milk products	11	18.33	27	45.00	4	6.67	18	30.00	24	40.00	24	40.00	7	11.67	5	8.33

More than 80 per cent of the farm men 'never' performed roles like sowing seeds in nursery bed (88.33%), seed treatments with fungicides (81.67%), transplanting (80%), threshing (83.33%), winnowing (88.33%), drying (88.33%) and dehusking (88.33%). More than 60 per cent of them 'never' performed roles like pulling out seedlings from nursery bed (65%), gap filling (71.67%), transporting the harvested produce to the threshing floor (66.67%) and preparing and carrying food for labourers (73.33%).

It could be observed from the result that majority of the preparatory operations like ploughing, puddling, levelling, application of manures and fertilizers were done by men. Traditionally women were exempted from preparatory operations like ploughing, puddling and levelling which were solely undertaken by men. These operations by nature need more energy which could be done only by the male members. Hence the participation of men farmer was higher in these operations. Whereas the participation of them was lower in post-harvest operations which is usually done by women. Their participation was also lower in women dominated operations like transplanting, weeding and harvesting.

The result clearly indicates that involvement of men is lower in case of drudgery ridden tasks. From this we could see clear cut sexual division of labour in rice farming which is mainly based on gender.

The result is in concordance with the findings of Singh *et al.* (1988), Sikka and Swarup (1990), Singh and Sharma (1991) and Varma and Sinha (1991).

4.3.2 **Roles performed by women in men headed household**

Table 5 revealed that majority of women were 'more often' involved in post-harvest operations like winnowing (40%), drying (51.67%), dehusking (48.33%) and storage of dried seeds (50%) and all tasks related to livestock management such as management of milch animal and draught animal (46.67%), maintenance of cattle shed (41.67%), feeding the animals (38.33%), preparing processed food from milk (55%) and marketing of milk and milk products (40%), supervising the labourers (35%) and weeding (30%) .

More than 90 per cent 'never' performed roles like ploughing the main field (100%), puddling (100%), levelling (100%), seed treatment with fungicides (100%), nursery bed preparation (93.33%), sowing seeds in nursery bed (91.67%), maintaining water depth in nursery bed (98.33%), sowing seeds in nursery bed (91.67%), trimming and plastering of field bunds (98.33%), gap filling (95%), application of manures and fertilizers (93.33%), stacking and bundling the harvested produce (93.33) and transporting the harvested produce to the threshing floor (96.67%).

A birds eye view of the result reveals that women in men headed were mostly engaged in post-harvest operations like winnowing, drying, dehusking and storage of dried seeds and animal management which could be performed by farm women by remaining within the house itself. This might be the reason for their high participation in these activities. As a result of farm mechanisation majority of preparatory operations can be done by men with the help of machines, not much research has been done to mechanise the activities like weeding, harvesting etc. These drudgery ridden tasks were solely performed by women. With regard to their involvement in the supervision of agricultural labourers and preparing food and carrying it to the labourers since majority of the male members in men headed household are engaged in non-farm activities at the time of cultivation in addition to household work the women are forced to go to the field and supervise the labourers in the absence of male members.

The result is in line with the findings of Achanta (1982), Kalpana (1983), Jegannathan (1984), Shilaja (1990) and Vijayalekshmi (1995).

4.3.3 **Roles performed by women in defacto household**

A cursory perusal of the Table 6 reveal that more than 80 per cent of respondents were 'often' involved in the management of milch and draught animal activities like maintenance of cattle shed (60%), feeding the animals (43.33%), taking care of sick animals (53.33%) and

Table 6 Roles performed by women in defacto and dejuri household in rice farming activities

Sl. No.	Roles	Men in defacto household (n = 30)								Women in dejuri household (n = 30)							
		Most often		Often		Sometimes		Never		Most often		Often		Sometimes		Never	
		No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
1	Preparation of nursery bed	5	16.51	7	23.33	1	3.33	17	63.33	4	13.33	2	6.67	-	-	24	80.0
2	Seed treatment with fungicides	-	-	1	3.33	-	-	29	96.67	1	3.33	-	-	-	-	29	96.6
3	Sowing seeds in nursery bed	5	16.67	6	20.00	1	3.33	18	60.00	6	20.00	2	6.67	4	13.33	18	60.0
4	Maintaining water depth in nursery	-	-	2	6.67	-	-	28	93.33	1	3.33	1	3.33	-	-	28	93.3
5	Pulling out seedlings from nursery bed	10	33.33	5	16.67	2	6.67	13	43.33	6	20.00	6	20.00	3	10.33	15	50.0
6	Ploughing the mainfield	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30	100.0
7	Puddling	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30	100.0
8	Levelling	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30	100.0
9	Trimming and plastering the field bunds	-	-	1	3.33	-	-	29	96.67	1	3.33	1	3.33	1	3.33	27	90.0
10	Spreading the farm yard manure and green manures in the mainfield	3	10.00	4	13.33	-	-	23	76.67	-	-	5	16.67	-	-	25	83.3
11	Transplanting	10	33.33	5	16.67	3	10.00	12	40.00	4	13.33	8	26.67	-	-	18	60.0
12	Irrigating the mainfield	-	-	-	-	1	3.33	28	93.33	2	6.67	1	3.33	1	3.33	26	86.6
13	Forming drainage channels	1	3.33	-	-	-	-	29	96.67	2	6.67	1	3.33	1	3.33	26	86.6
14	Gap filling	5	16.67	7	23.33	2	6.67	16	53.33	1	3.33	7	23.33	4	13.33	18	60.0
15	Plugging the rat holes	8	26.67	10	23.33	4	13.33	8	26.67	6	20.00	3	10.00	1	3.33	20	66.6
16	Application of manures and fertilizers	5	16.67	4	13.33	-	-	21	70.00	4	13.33	3	10.00	2	6.67	21	70.0
17	Scaring birds	21	70.00	4	13.33	1	3.33	4	13.33	10	33.33	10	33.33	2	6.67	8	26.6
18	Weeding	19	63.33	6	20.00	1	3.33	4	13.33	6	20.00	6	20.00	6	20.00	12	40.0
19	Harvesting	13	43.33	4	13.33	4	13.33	9	30.00	7	23.33	3	10.00	3	10.00	7	56.6
20	Stackling and bundling the harvested produce	3	10.00	1	3.33	2	6.67	24	80.00	-	-	2	6.67	1	3.33	27	90.0
21	Transporting the harvested produce to threshing floor	-	-	1	3.33	1	3.33	28	93.33	2	6.67	4	13.33	-	-	24	80.0
22	Threshing	6	20.00	2	6.67	3	10.00	19	63.33	4	13.33	3	10.00	2	6.67	21	70.0
23	Winnowing	18	60.00	7	23.33	1	3.33	4	13.33	18	60.00	3	10.00	2	6.67	7	23.3
24	Drying	19	63.33	6	20.00	1	3.33	4	13.33	13	43.33	5	16.67	5	16.67	7	23.33
25	Dehusking	16	53.33	6	20.00	3	10.00	5	16.67	4	13.33	8	26.67	7	23.33	11	36.67
26	Processing of seeds	13	43.33	9	30.00	-	-	8	26.67	4	13.33	9	30.00	1	3.33	16	53.33
27	Storage of dried seeds	18	60.00	9	30.00	-	-	3	10.00	15	50.00	7	23.33	3	10.00	5	16.67
28	Supervising the labourers	18	60.00	9	30.00	1	3.33	2	6.67	10	33.33	7	23.33	2	6.67	11	36.67
29	Preparing and carrying food for labourers in the field	17	56.67	7	23.33	1	3.33	5	16.67	7	23.33	10	33.33	1	3.33	12	40.00
30	Marketing the produce	2	6.67	4	13.33	-	-	22	73.33	5	16.67	2	6.67	1	3.33	22	73.33
31	Management of milch and draught animal	25	83.33	7	23.33	-	-	8	26.67	15	50.00	7	36.67	3	10.00	4	13.33
32	Maintenance of cattle shed	18	60.00	9	30.00	3	10.00	-	-	16	53.33	6	20.00	5	16.67	3	6.67
33	Feeding the animals	13	43.33	12	40.00	-	-	5	16.67	6	20.00	12	40.00	4	13.33	8	26.67
34	Taking animals for grazing	6	20.00	9	30.00	1	3.33	14	46.67	3	10.00	5	16.67	3	10.00	19	63.33
35	Milking the animals	10	33.33	3	10.00	5	16.67	12	40.00	5	14.67	5	16.67	4	13.33	16	53.33
36	Taking care of sick animals	16	53.33	8	26.67	4	13.33	2	6.67	4	13.33	10	33.33	3	10.00	13	43.33
37	Preparing processed food from milk	16	53.33	10	33.33	-	-	4	13.33	6	20.00	10	33.33	3	10.00	11	36.67
38	Marketing of milk and milk products	12	40.00	7	23.33	4	13.33	7	23.33	5	16.67	7	23.33	2	6.67	16	53.33

preparing processed food from milk (53.33%). They were also engaged in post harvest operations like winnowing (60%), drying (63.33%), storage of dried seeds (60%), scaring birds (70%), weeding (63.33%) and supervising the labourers (60%).

More than 40 per cent of them also performed roles like pulling out seedlings from nursery bed (33.33%), transplanting (33.33%), harvesting (43.33%), marketing of milk and milk products (40%), processing of seeds (43.33%) and feeding the animals(43.33%).

They 'never' performed roles like ploughing (100%), puddling (100%) and levelling (100%). More than 90 per cent of them 'never' performed roles like seed treatment (96.67%), maintaining water depth in nursery (93.33%), trimming and plastering the field bunds (96.67%), irrigating the main field (93.33%), forming drainage channels (96.67%) and transporting the harvested produce to the threshing floor (93.33%).

Result presented above revealed that majority (80 per cent) of the women farmers in defacto household 'most often' performed roles related to the management of milch animal like maintenance of cattle shed, feeding the animals, taking care of sick animals etc. and all post harvest operations like drying, winnowing and storage of dried seeds. They were also engaged in preparing nursery bed, sowing seeds in nursery bed, pulling out seedlings from nursery bed, transplanting, gap

filling plugging the rat holes and harvesting. As we have seen already the management of livestock and post harvest operations were mostly carried out near the house itself, hence high level of participation is observed in these two areas. Their participation is also found in areas like transplanting, gap filling, sowing seeds, plugging the rat holes etc. which is usually carried out by women.

The findings is in concordance with the findings of Devadas (1975), Dipali (1979), Anandalakshmi and Kelkar (1980), Achanta (1982), Kalpana (1983), Sherwani (1983), Saiba (1985), Kareem (1989), Sudharani and Raju (1991), Anitha *et al.* (1993) and Vijayalakshmi (1995).

4.3.4 **Roles performed by women in dejuri household**

Table 6 revealed that majority of the women farmers 'most often' performed roles like winnowing (60%), storage of dried seeds (50%), management of milch and draught animal (50%) and maintenance of cattle shed (53.33%). More than 30 per cent of them were 'often' involved in scaring birds (33.33%), drying (43.33%), supervising the labourers in the field (33.33%), feeding the animals (40%), taking care of sick animals (33.33%) and preparing processed food from milk (33.33%).

Preparatory operations like ploughing (100%), puddling (100%) and levelling (100%) were 'never' done by the farmers. More than 90 per cent of them 'never' performed roles like seed treatment (96.67%), maintaining water depth in nursery (93.33%), trimming and plastering the field bunds (90%), stacking and bundling the harvested produce (90%). More than 60 per cent 'never' performed roles like preparation of nursery bed (80%), sowing seeds in nursery bed (60%, spreading the farm yard manure and green manure in the main field (83.33%), irrigating the mainfield (86.67%), forming drainage channels (86.67%), gap filling (60%), application of manures and fertilizers (70%), threshing (70%), marketing the produce (73.33%), taking animals for grazing (63.33%) and transporting the harvested produce to the threshing floor (80%).

A view of the result revealed that majority of the women 'most often' performed roles like management of milch animal, weeding, scaring birds, post harvest operations like drying and storage of dried seeds. In addition to this, they were also involved in supervising the labourers and carrying food for them. Reason being, the women in this household mostly come under old age. The rate of participation in any activity reduces with increase in age. In agriculture too the women of younger age group were participating more than those belonging to old age group as the young farmers possess more capacity to do physically strenuous work. So these women mostly employ labourers to work in

the field and they do the supervisory role. This might be the reason for their poor involvement in farm activities.

It is also found that they did not participate in activities like ploughing, puddling, levelling and trimming and plastering of field bunds which is carried out entirely by men. These activities require more skill and also social customs and tradition do not sanction ploughing of land by women. So mechanized operations were mostly done by men and operations needing manual labour were done mainly by females.

Closely related studies was reported by Dipali (1979), Chaney (1981), Achanta (1982), Kalpana (1983), Jegannathan (1984) and Shilaja (1990). In view of the above discussion, the hypothesis that there exist no significant difference among the four categories of rice farmers with regard to role performance in rice farming activities was rejected accepted the alternative hypothesis that is significant difference among the farmers with regard to performance among the farmers with regard to performance in rice farming activities.

4.4 Role performance of rice farmers in decision making

4.4.1 Role performance of men in men headed household in joint decision making in rice farming

Table 7 revealed that majority (80 per cent) of the respondents in this category 'always' took joint decisions in areas like deciding the

expenditure of farm / home (81.67%), type of animal breed to be grown (86.67%), number of animals to be maintained (80%) and marketing of milk and fixing the price (73.33%). Only less than 40 per cent of the respondents took decisions in consultation with their wives in areas such as choice of the crop and variety (31.67%) and marketing the harvested produce (36.67%).

4.4.2 Role performance of men in men headed household in independent decision making in rice farming

View of the table 7 shows that more than 80 per cent of the male farmers took decisions independently in areas like selecting quality seeds (96.67%), method of sowing (75%), seed rate to be followed (98.33), chemicals to be used in seed treatment (98.33%), type of fungicides and pesticides to be used (93.33%) and interval of irrigation to be given (98.33%), time of pulling out seedling from nursery bed (86.67%), time of weeding (83.33%), number of labourers required for weeding (80%), place where the fertilizers are to be purchased (86.67%), time of harvest (83.33%), method of threshing (81.67%), quantity of grains to be stored (83.33%) and quantity of grain to be sold (73.33%).

A considerable number of respondents (above 60 per cent) were found to make independent decisions 'always' with respect to seed treatment (75%), number of labourers required for land preparation

Table 7 Role performance in decision making by men in men headed household

Sl. No.	Decision making areas	Joint decision making						Independent decision making					
		Always		Sometimes		Never		Always		Sometimes		Never	
		No	%	No	%	No	%	No	%	No	%	No	%
1	Choice of the crop and variety	19	31.67	7	11.67	34	56.67	33	55.00	2	3.33	25	41.67
2	Selecting quality seeds	2	3.33	-	-	58	96.67	58	96.67	-	-	-	-
3	Seed treatment	-	-	-	-	60	100.00	45	75.00	3	5.00	12	20.00
4	Methiod of sowing	-	-	1	1.67	59	98.33	56	93.33	3	5.00	1	1.67
5	Seed rate to be followed	-	-	-	-	60	100.00	59	98.33	1	1.67	-	-
6	Chemicals to be used in seed treatment	-	-	-	-	60	100.00	59	98.33	1	1.67	-	-
7	Time of pulling out seedling from nursery bed	4	6.67	3	5.00	57	95.00	52	86.67	1	1.67	7	11.67
8	Type of ploughing to be done	2	3.33	-	-	58	96.67	56	93.33	2	3.33	2	3.33
9	Number of labourers required for land preparation	8	13.33	7	11.67	45	75.00	43	71.67	2	3.33	15	25.00
10	Spacing to be adopted for planting seedlings	-	-	3	5.00	57	95.00	55	91.67	2	3.33	3	5.00
11	Number of labourers required for transplanting	7	11.67	5	8.33	48	80.00	47	78.33	1	1.67	12	20.00
12	Time of applying manures and ferttilizers	4	6.67	3	5.00	53	88.33	51	85.00	2	3.33	7	11.67
13	Quantity of manures and fertilizers to be applied	-	-	-	-	60	100.00	60	100.00	-	-	-	-
14	Interval of irrigation to be given	1	1.67	-	-	59	98.33	59	98.33	-	-	1	1.67
15	Time of weeding	4	6.67	6	10.00	50	83.33	50	83.33	-	-	10	16.67
16	Number of labourers required for weeding	9	15.00	3	5.00	48	80.00	48	80.00	-	-	12	20.00
17	Type of fungicides and pesticides to be used	-	-	3	5.00	57	95.00	56	93.33	1	1.67	3	5.00
18	Place where the fertilizers are to be purchased	4	6.67	2	3.33	54	90.00	52	86.67	2	3.33	6	10.00
19	Time of harvest	6	10.0	2	3.33	52	86.67	50	83.33	2	3.33	8	13.33
20	Number of labourers required for harvesting	7	11.67	4	6.67	49	81.67	47	78.33	2	3.33	11	18.33
21	Method of threshing	8	13.33	1	1.67	51	85.00	49	81.67	2	3.33	9	15.00
22	Quantity of grains to be stored	9	15.00	1	1.67	50	83.33	50	83.33	-	-	10	16.67
23	Quantity of grains to be sold	15	25.00	-	-	45	75.00	44	3.33	1	1.67	15	25.00
24	Method of processing the seed	16	26.67	3	5.00	41	68.33	39	65.00	2	3.33	19	31.67
25	Marketing the produce	22	36.67	2	3.33	36	60.00	35	58.33	1	1.67	24	40.00
26	Deciding the expenditure of farm and home	49	81.67	-	-	11	18.33	10	16.6	1	1.67	49	81.67
27	Wages to be paid to labourers	34	56.67	6	10.00	20	33.33	18	30.00	1	1.67	41	68.33
28	Type of animal breed to be grown	52	86.67	3	5.00	5	8.33	5	8.33	-	-	55	91.67
29	Number of animals to be maintained	48	80.00	7	11.67	5	8.33	5	8.33	-	-	55	91.67
30	Care and management of animals	28	46.67	3	5.00	12	20.00	12	20.00	5	8.33	43	71.67
31	Type of feed to be given	26	43.33	8	13.33	22	36.67	22	36.67	4	6.67	34	56.67
32	Marketing the milk and fixing the price	44	73.33	5	8.33	11	18.33	11	18.33	-	-	49	81.67

(71.67%), number of labourers required for transplanting (78.33%) and harvesting (78.33%) and method of processing the seed (65%).

From the above result it could be inferred, that men took decisions related to financial matter only after consultation with their wives. Since they are the equal partners in the development of their farm and home they should involve their wives while taking important decisions which results in selection of various alternative course of action. Since decision making itself is a particular course of action from among the alternative. Majority of the animal related tasks are performed by women in this farm household, so any decision regarding this will be taken by the male counterparts only after consultation with their wives.

Almost all the decisions related to field activities were solely taken by men. Majority of the women in men headed households are less involved with respect to field activities. They usually do those activities which can be practiced within their homesteads. So any decisions with regard to field activities has to be taken independently by their male counterparts, since they are more involved in these activities and are aware of the conditions in the field.

The result is in accordance with the findings of Arya (1963), Sharma and Singh (1970), Devadas (1975), Achanta (1982), Seema

(1986), Kaur *et al.* (1988), Singh *et al.* (1988), Singh and Sharma (1988) and Alex (1994).

4.4.3 Role performance of women in men headed household in joint decision making

A view of the Table 8 shows that more than 50 per cent of the respondents 'always' made joint decisions in the following three areas viz. choice of the crop and variety (66.67%), quantity of grains to be sold (53.33%), marketing of the produce (53.33%), deciding the expenditure of farm / home (88.33%), type of animal breed to be grown (91.67%), wages to be paid to labourers (73.33%) and number of animals to be maintained (80%).

Only 30 per cent of them took decisions in consultation with their male counterparts with regard to time of applying manures and fertilizers (30%) and method of processing the seed (36.67%).

4.4.4 Role performance of women in men headed household in independent decision making

Table 8 indicates that above 30 per cent of the respondents took independent decisions in areas like care and management of animals (48.33%), marketing the milk and fixing the price of milk products (43.33%) and type of feed to be given (36.67%).

Table 8 Role performance in decision making by women in men headed household

Sl. No.	Decision making areas	Joint decision making						Independent decision making					
		Always		Sometimes		Never		Always		Sometimes		Never	
		No	%	No	%	No	%	No	%	No	%	No	%
1	Choice of the crop and variety	40	66.67	6	10.00	14	23.33	1	1.67	-	-	59	98.33
2	Selecting quality seeds	2	3.33	-	-	58	96.67	1	1.67	-	-	59	98.33
3	Seed treatment	-	-	-	-	60	100.00	-	-	-	-	60	100.00
4	Methiod of sowing	4	6.67	1	1.67	55	91.67	1	1.67	-	-	59	98.33
5	Seed rate to be followed	2	3.33	-	-	58	96.67	1	1.67	-	-	59	98.33
6	Chemicals to be used in seed treatment	2	3.33	-	-	58	96.67	1	1.67	-	-	59	98.33
7	Time of pulling out seedling from nursery bed	12	20.00	2	3.33	46	76.67	1	1.67	1	1.67	58	96.67
8	Type of ploughing to be done	8	13.33	-	-	52	86.67	1	1.67	-	-	59	98.33
9	Number of labourers required for land preparation	10	16.67	2	3.33	48	80.00	2	3.33	-	-	58	96.67
10	Spacing to be adopted for planting seedlings	-	-	-	-	60	100.00	1	1.67	-	-	59	98.33
11	Number of labourers required for transplanting	8	13.33	3	5.00	49	81.67	2	3.33	1	1.67	57	95.00
12	Time of applying manures and ferttilizers	18	30.00	3	5.00	39	65.00	1	1.67	-	-	59	98.33
13	Quantity of manures and fertilizers to be applied	5	8.33	1	-	52	86.67	1	1.67	-	-	59	98.33
14	Interval of irrigation to be given	7	11.67	-	1.67	52	6.67	1	1.67	-	-	59	98.33
15	Time of weeding	10	16.67	3	5.00	47	78.33	2	3.33	2	3.33	56	93.33
16	Number of labourers required for weeding	13	21.67	3	5.00	44	3.33	2	3.33	1	1.67	57	95.00
17	Type of fungicides and pesticides to be used	6	10.00	-	-	54	90.00	1	1.67	-	-	59	98.33
18	Place where the fertilizers are to be purchased	6	10.00	1	1.67	53	58.33	1	1.67	-	-	59	98.33
19	Time of harvest	20	33.33	1	1.67	39	65.00	1	1.67	1	1.67	58	96.67
20	Number of labourers required for harvesting	14	23.33	3	5.00	43	71.67	1	1.67	1	1.67	58	96.67
21	Method of threshing	16	26.67	2	3.33	42	70.00	2	3.33	2	3.33	56	93.33
22	Quantity of grains to be stored	16	26.67	1	1.67	43	71.67	1	1.67	2	3.33	57	95.00
23	Quantity of grains to be sold	32	53.33	1	1.67	27	45.00	-	-	2	3.33	58	96.67
24	Method of processing the seed	22	36.67	-	-	38	63.33	2	3.33	3	5.00	55	91.67
25	Marketing the produce	32	53.33	3	5.00	25	41.67	-	-	3	5.00	57	95.00
26	Deciding the expenditure of farm and home	53	88.33	3	5.00	4	6.67	-	-	2	3.33	58	96.67
27	Wages to be paid to labourers	44	73.33	3	5.00	13	21.67	3	5.00	2	3.33	55	91.67
28	Type of animal breed to be grown	55	91.67	3	5.0	2	3.33	-	-	2	3.33	58	96.67
29	Number of animals to be maintained	48	80.0	2	3.33	10	16.67	4	6.67	4	6.67	52	86.67
30	Care and management of animals	9	15.00	-	-	51	85.00	29	48.33	16	26.67	15	25.00
31	Type of feed to be given	3	5.00	1	1.67	56	93.33	22	36.67	32	53.33	6	10.00
32	Marketing the milk and fixing the price	17	28.33	1	1.67	42	70.00	26	43.33	15	25.00	19	31.67

A critical view of the result showed that the role of women in men headed households in joint and independent decision making was limited, the reason being that the men in these households do not engage their wives to work in the field and all the decisions with respect to field activities are taken by the men independently. Women in these households were consulted by their male counterparts only with respect to financial aspects and animal related activities since they are actively involved in animal and home management.

The result is in conformity with the findings of Devadas (1975), Sisodia (1985), Seema (1986), Menon and Bhaskaran (1988) and Shilaja (1990).

4.4.5 Role performance of women in defacto household in joint decision making

A glance at the Table 9 shows that between 60 to 70 per cent of the respondents 'always' took joint decisions in areas like choice of crop and variety (90%), deciding the expenditure of farm / home (90%), chemicals to be used in seed treatment (70%), quantity of manures and fertilizers to be applied (70%), type of fungicides and pesticides to be used (63.33%), quantity of grains to be stored (70%), method of processing the seed (70%), marketing the produce (73.33%), wages to be paid to labourers (70%), type of animal breed to be grown (76.67%),

Table 9 Role performance in decision making by women in defacto household

Sl. No.	Decision making areas	Joint decision making						Independent decision making					
		Always		Sometimes		Never		Always		Sometimes		Never	
		No	%	No	%	No	%	No	%	No	%	No	%
1	Choice of the crop and variety	27	90.00	2	6.67	1	3.33	3	10.00	-	-	27	90.00
2	Selecting quality seeds	20	66.67	-	-	10	33.33	3	10.00	1	3.33	26	86.67
3	Seed treatment	15	50.00	-	-	15	50.00	-	-	-	-	-	-
4	Methiod of sowing	14	46067	-	-	16	53.33	5	1.67	2	6.67	23	76.67
5	Seed rate to be followed	14	46.67	-	-	16	53.33	4	13.33	2	6.67	24	80.00
6	Chemicals to be used in seed treatment	21	70.00	-	-	9	30.00	1	3.33	1	3.33	28	93.33
7	Time of pulling out seedling from nursery bed	8	26.67	-	-	22	73.33	8	26.67	1	3.33	21	70.00
8	Type of ploughing to be done	18	60.00	-	-	12	40.00	6	20.00	1	3.33	23	76.67
9	Number of labourers required for land preparation	10	33.33	-	-	20	67.67	11	36.67	2	6.67	17	56.67
10	Spacing to be adopted for planting seedlings	15	50.00	-	-	15	50.00	4	13.33	2	6.67	24	80.00
11	Number of labourers required for transplanting	9	30.00	1	3.33	20	66.67	9	30.00	5	1.67	16	53.33
12	Time of applying manures and ferttilizers	18	60.00	-	-	12	40.00	6	20.00	1	3.33	23	76.67
13	Quantity of manures and fertilizers to be applied	21	70.00	-	-	9	30.00	1	3.33	1	3.33	28	93.33
14	Interval of irrigation to be given	19	63.33	-	-	11	36.67	4	13.33	1	3.33	25	83.33
15	Time of weeding	20	66.67	1	3.33	9	30.00	9	30.00	-	-	21	70.00
16	Number of labourers required for weeding	8	26.67	-	-	22	73.33	14	46.67	4	13.33	12	40.00
17	Type of fungicides and pesticides to be used	19	63.33	-	-	11	36.67	2	6.67	-	-	28	93.33
18	Place where the fertilizers are to be purchased	21	70.00	4	13.33	5	16.67	1	3.33	1	3.33	28	93.33
19	Time of harvest	24	80.60	-	-	6	20.00	4	13.33	-	-	26	86.67
20	Number of labourers required for harvesting	10	33.33	-	-	20	66.67	15	50.00	5	16.67	10	33.33
21	Method of threshing	20	66.67	-	-	10	33.33	3	10.00	2	6.67	25	83.33
22	Quantity of grains to be stored	21	70.0	-	-	9	30.00	4	13.33	1	3.33	25	83.33
23	Quantity of grains to be sold	22	73.33	1	3.33	7	23.33	4	13.33	2	6.67	24	80.00
24	Method of processing the seed	21	70.00	-	-	9	30.00	2	6.67	2	6.67	26	86.67
25	Marketing the produce	22	73.33	-	-	8	26.67	4	13.33	1	3.33	25	83.33
26	Deciding the expenditure of farm and home	27	90.00	-	-	3	10.00	2	6.67	-	-	28	93.33
27	Wages to be paid to labourers	21	70.00	-	-	9	30.00	7	23.33	1	3.33	22	73.33
28	Type of animal breed to be grown	23	76.67	-	-	7	23.33	6	20.00	1	3.33	23	76.67
29	Number of animals to be maintained	24	80.60	-	-	6	20.00	5	1.67	1	3.33	24	80.60
30	Care and management of animals	10	33.33	-	-	20	66.67	16	53.33	3	10.00	11	36.67
31	Type of feed to be given	8	26.67	-	-	22	73.33	17	56.67	4	13.33	9	30.00
32	Marketing the milk and fixing the price	8	26.67	-	-	22	73.33	21	70.00	1	3.33	8	26.67

selecting quality seeds (66.67%), type of ploughing to be done (60%), time of applying manures and fertilizers (60%), interval of irrigation to be given (63.33%), time of weeding (66.67%) and method of threshing (66.67%).

4.4.6 Role performance of women in defacto household in independent decision making

Table 9 revealed that above 50 per cent of the women 'always' took independent decisions in aspects like number of labourers required for weeding (46.67%) and harvesting (50%), care and management of animals (53.33%), type of feed to be given (56.67%) and marketing the milk and fixing the price (70%).

Only less than 40 per cent of them took decisions independently in areas such as number of labourers required for land preparation (36.67%) and transplanting (30%) and time of weeding (30%).

It is clear from the Table 9 that women in this category take decisions related to majority of farm activities only after consulting their husband. Increase in population and scarcity of resources resulted in competition in a given area among farm families. So the income they obtain from their farm was not sufficient to meet their needs which resulted in the migration of persons from low prospect regions to faster developing industrial, trade and administrative centres where

opportunities of earning are more. So absence of male member compelled the women to take farm and home decisions. Since these women are deprived of education, low exposure to other information sources, they are compelled to take decisions with regard to farm and home in consultation with their husband who is temporarily absent from their home.

The result is in line with the findings of Sharma and Singh (1970), Devadas (1975), Achanta (1982), Dubey *et al.* (1982), Yadav (1982), Seema (1986) and Alex (1994).

4.4.7 Role performance of women in dejuri household in joint decision making

A critical analysis of the Table 10 revealed that majority of the respondents (above 40 per cent) took decisions consulting their family members in areas like deciding the expenditure of farm / home (56.67%), type of animal breed to be grown (40%) and number of animals to be maintained (40%).

4.4.8 Role performance of women in dejuri household in independent decisions making

More than 50 per cent of the respondents took independent decisions with respect to time of pulling out seedling from nursery bed (60%), number of labourers required for transplanting (63.33%), time of

Table 10 Role performance in decision making by women in dejuri household

Sl. No.	Decision making areas	Joint decision making						Independent decision making					
		Always		Sometimes		Never		Always		Sometimes		Never	
		No	%	No	%	No	%	No	%	No	%	No	%
1	Choice of the crop and variety	10	33.33	1	3.33	19	63.33	13	43.33	-	-	17	56.67
2	Selecting quality seeds	5	16.67	5	16.67	20	66.67	12	40.00	-	-	18	60.00
3	Seed treatment	5	16.67	-	-	25	83.33	1	3.33	-	-	29	96.67
4	Methiod of sowing	-	-	-	-	30	100.00	16	53.33	1	3.33	13	43.33
5	Seed rate to be followed	5	16.67	-	-	25	83.33	9	30.00	1	3.33	20	66.67
6	Chemicals to be used in seed treatment	2	6.67	-	-	28	93.33	17	56.67	-	-	13	43.33
7	Time of pulling out seedling from nursery bed	2	6.67	-	-	28	93.33	18	60.00	2	6.67	10	33.33
8	Type of ploughing to be done	3	10.00	-	-	27	90.00	17	56.67	-	-	13	43.33
9	Number of labourers required for land preparation	1	3.33	2	6.67	27	90.00	17	56.67	-	-	13	43.33
10	Spacing to be adopted for planting seedlings	3	10.00	1	3.33	26	86.67	14	46.67	-	-	16	53.33
11	Number of labourers required for transplanting	1	3.33	3	10.00	26	86.67	19	63.33	2	6.67	9	30.00
12	Time of applying manures and ferttilizers	4	13.33	1	3.33	25	83.33	12	40.00	4	13.33	14	46.67
13	Quantity of manures and fertilizers to be applied	10	33.33	-	-	20	66.67	8	26.67	-	-	22	73.33
14	Interval of irrigation to be given	6	20.00	-	-	24	80.00	12	40.00	1	3.33	17	56.67
15	Time of weeding	3	10.00	1	3.3	26	86.67	17	56.67	3	10.00	10	33.33
16	Number of labourers required for weeding	5	16.67	1	3.33	24	80.00	16	53.33	1	3.33	13	43.33
17	Type of fungicides and pesticides to be used	11	36.67	-	-	19	63.33	7	23.33	1	3.33	22	73.33
18	Place where the fertilizers are to be purchased	5	16.67	-	-	25	83.33	12	40.00	2	6.67	16	53.33
19	Time of harvest	2	6.67	-	-	28	93.33	18	60.00	1	3.33	11	36.67
20	Number of labourers required for harvesting	4	13.33	-	-	26	86.67	16	53.33	-	-	14	46.67
21	Method of threshing	5	16.67	-	-	25	83.33	3	43.33	1	3.33	17	56.67
22	Quantity of grains to be stored	5	16.67	1	3.33	25	83.33	16	53.33	1	3.33	13	43.33
23	Quantity of grains to be sold	4	13.33	-	-	26	86.67	16	53.33	-	-	14	46.67
24	Method of processing the seed	8	26.67	1	3.33	22	73.33	12	40.00	-	-	18	60.00
25	Marketing the produce	9	30.00	2	6.67	20	66.67	11	36.67	2	6.67	17	56.67
26	Deciding the expenditure of farm and home	17	56.67	2	6.67	30	43.33	8	26.67	-	-	22	73.33
27	Wages to be paid to labourers	6	20.00	-	-	22	73.33	17	56.67	1	3.33	12	40.00
28	Type of animal breed to be grown	12	40.00	-	-	18	60.00	15	50.00	2	6.67	13	43.33
29	Number of animals to be maintained	12	40.00	-	-	18	60.00	14	46.67	3	10.00	13	43.33
30	Care and management of animals	7	23.33	-	-	23	76.67	16	53.33	5	16.67	9	30.00
31	Type of feed to be given	8	26.67	-	-	22	73.33	17	56.67	2	16.67	8	26.67
32	Marketing the milk and fixing the price	3	10.00	-	-	27	90.00	22	73.33	3	10.00	5	16.67

harvest (60%), care and management of animals (53.33%), marketing of milk and fixing the price (73.33%), method of sowing (53.33%), chemicals to be used in seed treatment (56.67%), type of ploughing to be done (56.67%), number of labourers required for land preparation (56.67%), time of weeding (56.67%), number of labourers required for weeding (53.33%) and harvesting (60%), quantity of grains to be stored and sold (53.33%), wages to be paid to labourers (56,67%) and type of feed to be given (56.67%).

The result clearly shows that the participation of women farmer in this category in decision making is higher, compared to women in other two household. Decision making itself is based on the household headship. So the responsibility of women farmer in dejuri household was higher with regard to farm business. So the majority of decisions were taken independently by her. Only for the financial aspects she consulted her family members.

The result of this study supports the findings of Dubey *et al.* (1982), Singh and Chander (1983), Sisodia (1985), Menon and Bhaskaran (1988) and Alex (1994).

Keeping in view of the above discussion, the hypothesis that there exist no significant difference among the four categories of rice farmers with regard to decision making was rejected and alternative hypothesis

that there exist significant difference with respect to role performance in decision making was accepted.

4.5 Comparison of rice farmers based on their role perception and performance with respect to rice farming activities and decision making

Kruskal wallis test was employed to compare the four categories of rice farmers based on their role perception and performance.

4.5.1 Role perception of rice farmers with regard to rice farming activities

A critical analysis of the Table 11 revealed that there exist no significant difference between the four categories of farmers with respect to perception in rice farming activities.

It is evident from the result that all the respondents performed almost all the roles which they perceived as important in actual field condition. That might be the reason for the non significant difference between the four categories of farmers. These results are summarised in Fig 3.

4.5.2 Role perception of rice farmers in decision making

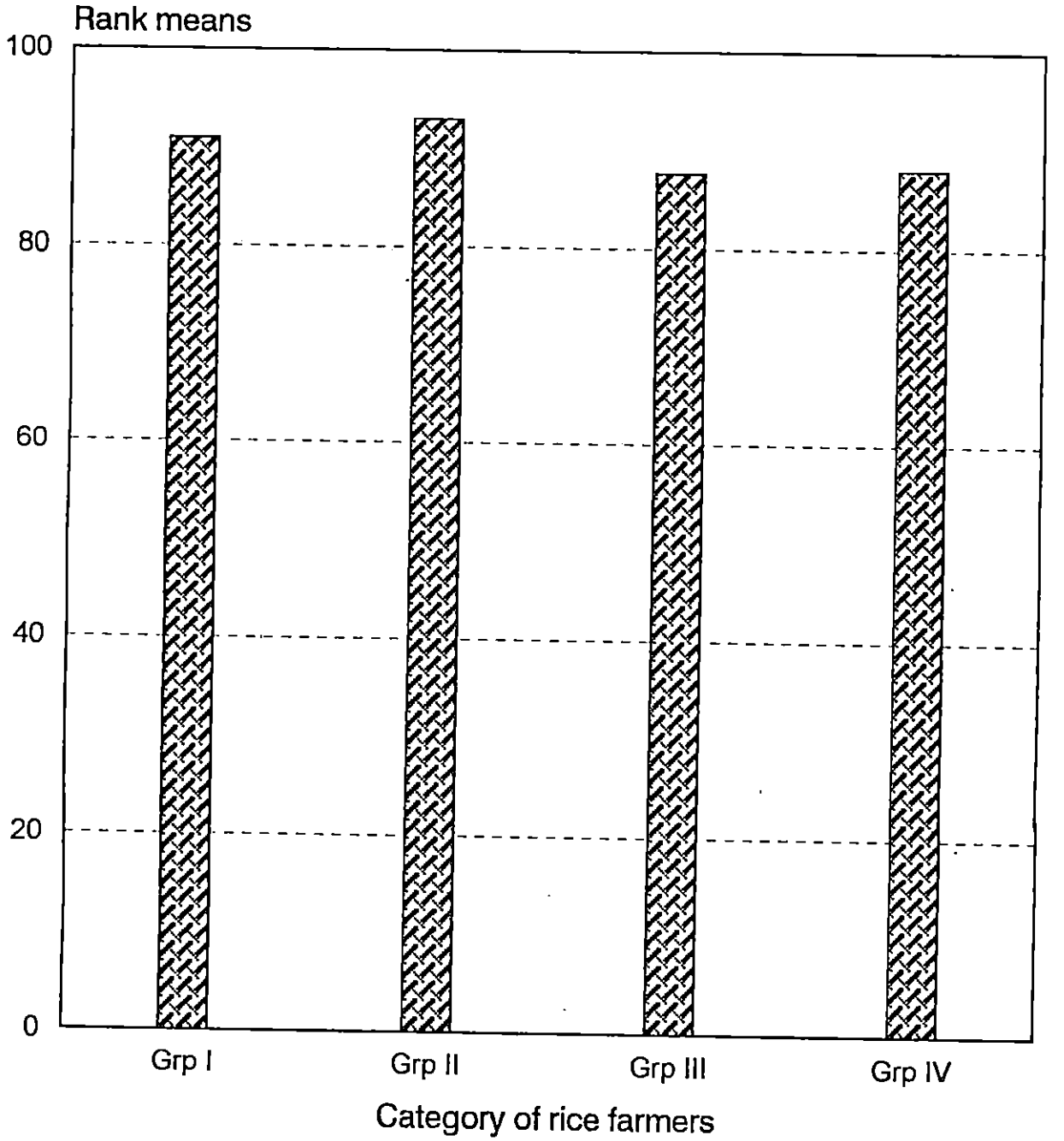
Table 12 revealed that men farmers in men headed household perceived to a greater extent than the women farmers in other

Table 11 Comparison of rice farmers based on their role perception in rice farming activities

Sl. No	Category of farmers	Rank means	Critical values
1	Men in men headed household (n = 60)	90.81	18.64 (1,2) 22.84 (1,3) 22.84 (1,4)
2	Women in men headed household (n = 60)	92.90	22.84 (2,3) 22.84 (2,4)
3	Women in defacto household (n = 30)	87.62	26.37 (3,4)
4	Women in dejuri household (n = 30)	87.98	

Z value 0.29 NS

Fig. 3 Rank means of role perception in rice farming activities of four categories of rice farmers



Grp I - Men in men headed household
Grp II - Women in men headed household
Grp III - Women in defacto household
Grp IV - Women in dejuri household

households. Also there exist significant difference between women farmers in men headed household and women in defacto household. Whereas the women farmers in defacto and dejuri household were on par with each with respect to role perception in decision making.

A bird's eye view of the result showed that the men were found to be superior compared to other three categories of farmers. Except certain post-harvest operation and animal related tasks all other activities were performed by the male farmers. This might be the reason for their increased perception about this task. Also women in defacto household were found to be more involved in farm activities than the women in men headed household. This is the reason for the significant difference existing between these two categories of women farmers. Schematic representation of the results are given in Fig 4.

4.5.3 Role performance of rice farmers with regard to rice farming activities

From the Table 13 it is clear that among the four groups of rice farmers, women farmers in defacto household is found to be superior with respect to role performance in rice farming activities, it is also found that there exist no significant difference between the men in men headed household and women in defacto household.

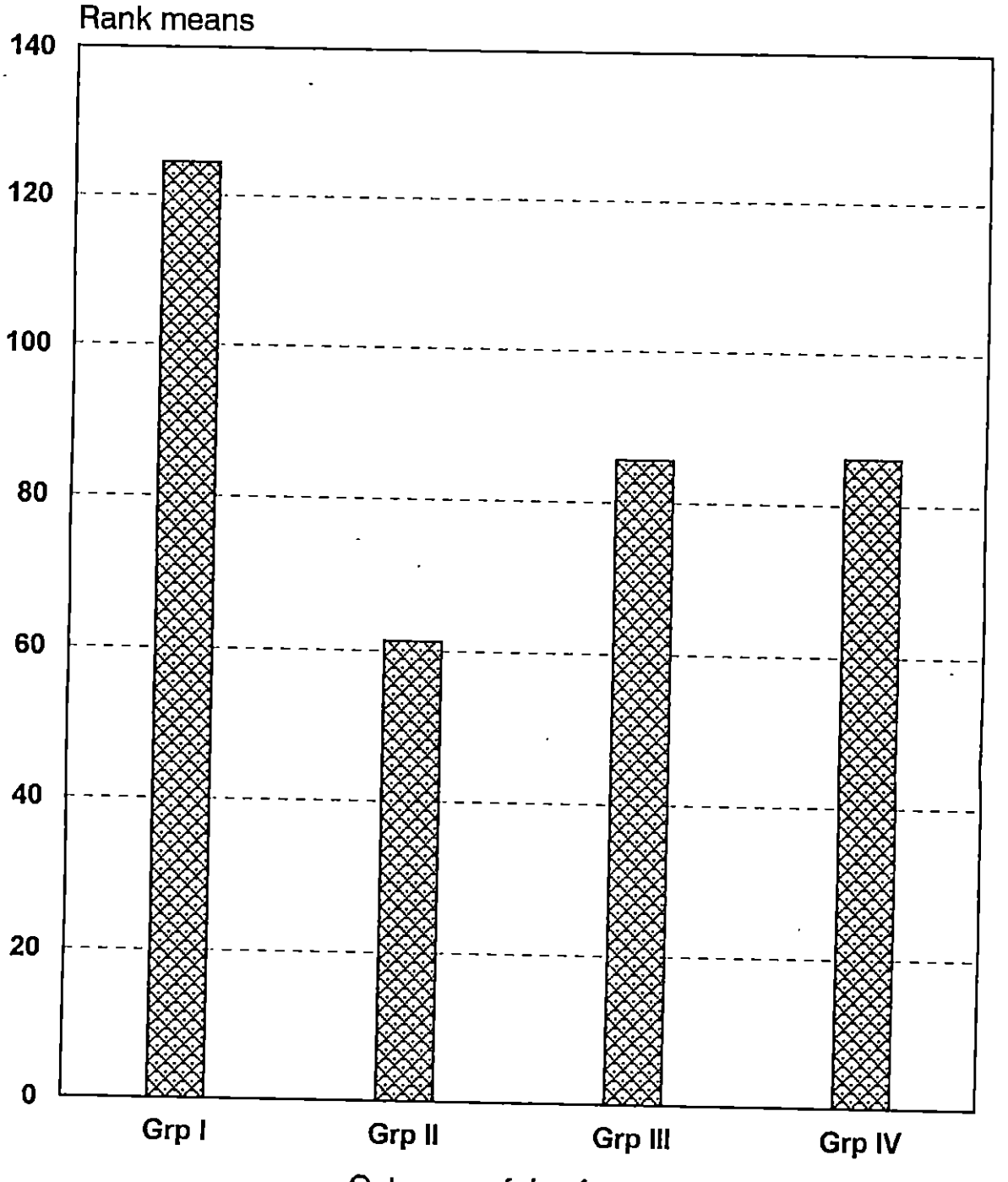
Table 12 Comparison of rice farmers based on their role perception in decision making

Sl. No	Category of farmers	Rank means	Critical values
1	Men in men headed household (n = 60)	124.41	18.64 (1,2) 22.84 (1,3) 22.84 (1,4)
2	Women in men headed household (n = 60)	61.31	22.84 (2,3) 22.84 (2,4)
3	Women in defacto household (n = 30)	85.53	26.37 (3,4)
4	Women in dejuri household (n = 30)	86.03	

Z value 44.78**

** Significant at 1% level

Fig. 4 Rank means of role perception in decision making of four categories of rice farmers



Grp I - Men in men headed household
Grp II - Women in men headed household
Grp III - Women in defacto household
Grp IV - Women in dejuri household

The critical values also revealed that the women in men headed household and the women in dejuri household were on par with respect to role performance in rice farming.

From the result it is clear that women in defacto household had a higher extent of participation in rice farming activities compared to other farmers. Due to economic gain men in defacto household migrate from low prospect regions to faster developing industrial centers, where opportunities of earning is more. This male emigration has resulted in varying degrees of impact on traditional division of labour among male and female members of the families. So in the absence of male members the farm responsibility has fallen in the hands of women in the household. Hence their involvement is more in rice farming activities. The men in men headed household is also found to be par with women in defacto household with regard to role performance in rice farming activities. This is so because most of the men in this houschold has agriculture as their main occupation. So they devote more time on farming than other activities.

Compared to other two categories of farmers women in men headed household was found to be inferior and their extent of participation is less. They were also found to be on par with women in dejuri household.

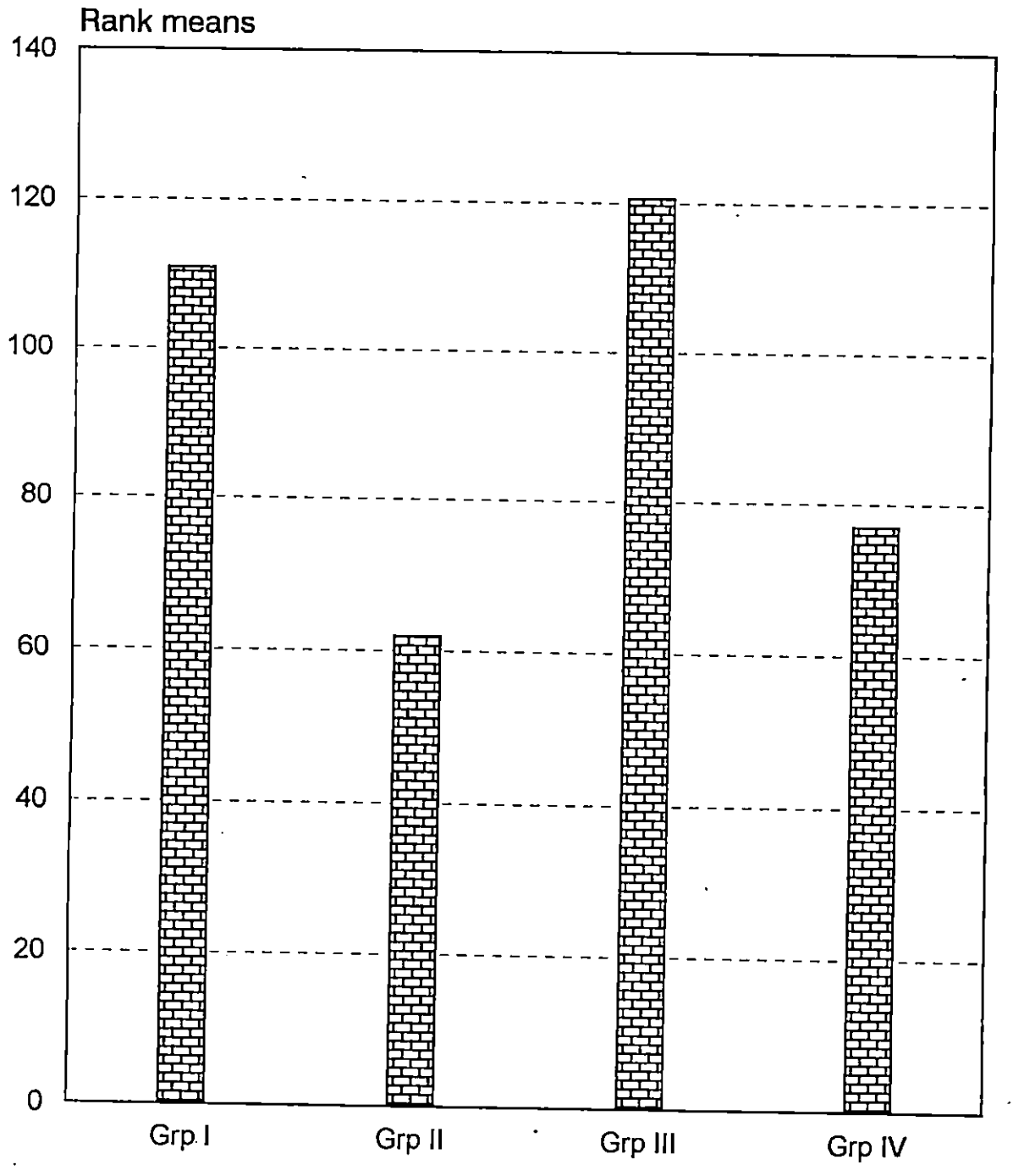
Table 13 Comparison of rice farmers based on their role performance in rice farming activities

Sl. No	Category of farmers	Rank means	Critical values
1	Men in men headed household (n = 60)	110.87	18.64 (1,2) 22.84 (1,3) 22.84 (1,4)
2	Women in men headed household (n = 60)	61.87	22.84 (2,3) 22.84 (2,4)
3	Women in defacto household (n = 30)	120.62	26.37 (3,4)
4	Women in dejuri household (n = 30)	76.98	

Z value 39.40**

** Significant at 1% level

Fig. 5 Rank means of role performance in rice farming activities of four categories of rice farmers



Grp I - Men in men headed household
Grp II - Women in men headed household
Grp III - Women in defacto household
Grp IV - Women in dejuri household

In the case of women in men headed household, the men in this household did not engage their women in farming instead they leave their women as managers of home based enterprises like livestock management and post-harvest operations. This might be the reason for their poor involvement in farming. With regard to women in dejuri household their old age restrict their increased involvement in drudgery ridden tasks in rice farming. So they sought the help of other family members or they employ wage labourers in their field. These results have been schematically represented in Fig 5.

4.5.4 **Role performance of rice farmers in joint decision making**

Table 14 revealed that women in defacto household is found to be superior compared to other three groups of farmers with respect to joint decision making. Whereas there exist no significant difference between the other three categories of farmers.

It could be observed from the result that majority of the women respondents in defacto household took joint decisions. The men in this household were involved in non-farm jobs and they engage their women to take care of their farm. Mostly the men in this household consulted their wives before taking any decisions related to farm. Because it is necessary that the women of this category should be aware of all the activities pertaining to rice farming. Since they have to take care of the farm in the absence of the men. The results are summarised in Fig 6.

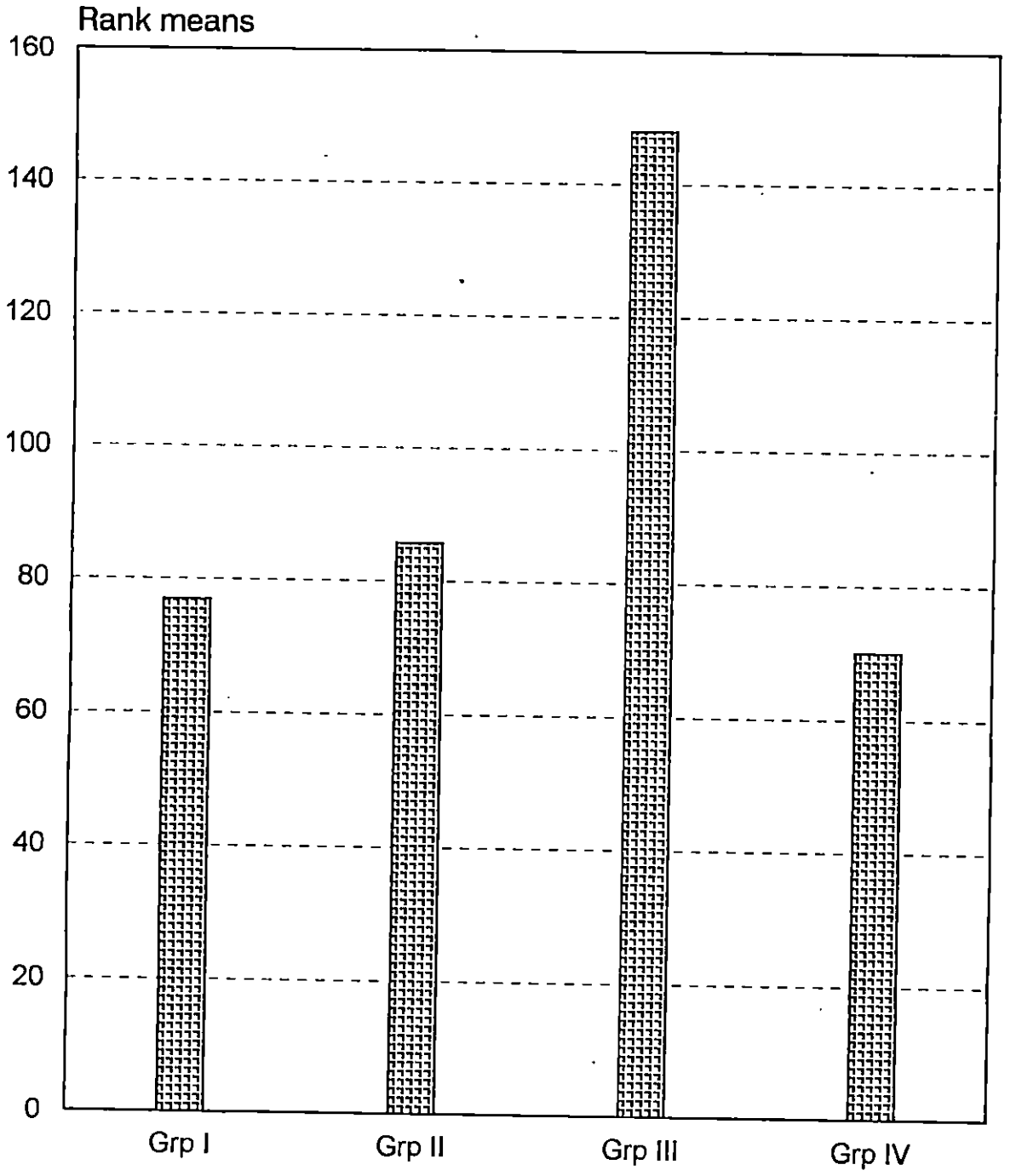
Table 14 Comparison of rice farmers based on their role performance in joint decision making in rice farming

Sl. No	Category of farmers	Rank means	Critical values
1	Men in men headed household (n = 60)	76.83	18.64 (1,2) 22.84 (1,3) 22.84 (1,4)
2	Women in men headed household (n = 60)	85.62	22.84 (2,3) 22.84 (2,4)
3	Women in defacto household (n = 30)	147.90	26.37 (3,4)
4	Women in dejuri household (n = 30)	70.00	

Z value 45.78**

** Significant at 1% level

Fig. 6 Rank means of role performance in joint decision making of four categories of rice farmers



Grp I - Men in men headed household
Grp II - Women in men headed household
Grp III - Women in defacto household
Grp IV - Women in dejuri household

4.4.5 Role performance of rice farmers with respect to independent decision making

A view of the Table 15 revealed that there exist significant difference between the men in men headed household and all the three categories of women with regard to role performance in independent decision making. Whereas women in dejuri household were found to be significantly superior to other two categories of women. It is also found that there exist significant difference between women in defacto household and women in men headed household.

The result depict that the men are the superiors with regard to independent decision making. In most of the men headed household male domination is clearly evident in case of decision making. In such household the men might consult their wives regarding some aspects but the final decision is taken by the men only. Since the men in this household mostly keep their wives out of farm activities. So the women are ignorant about the latest development in farming. So they lack the knowledge about the technical aspects in farming like application of chemical fertilizers, use of plant protection chemicals and so on. Whereas the men are more experienced and they possess the ability to take independent decisions. This might be the reason for their higher involvement in independent decision making.

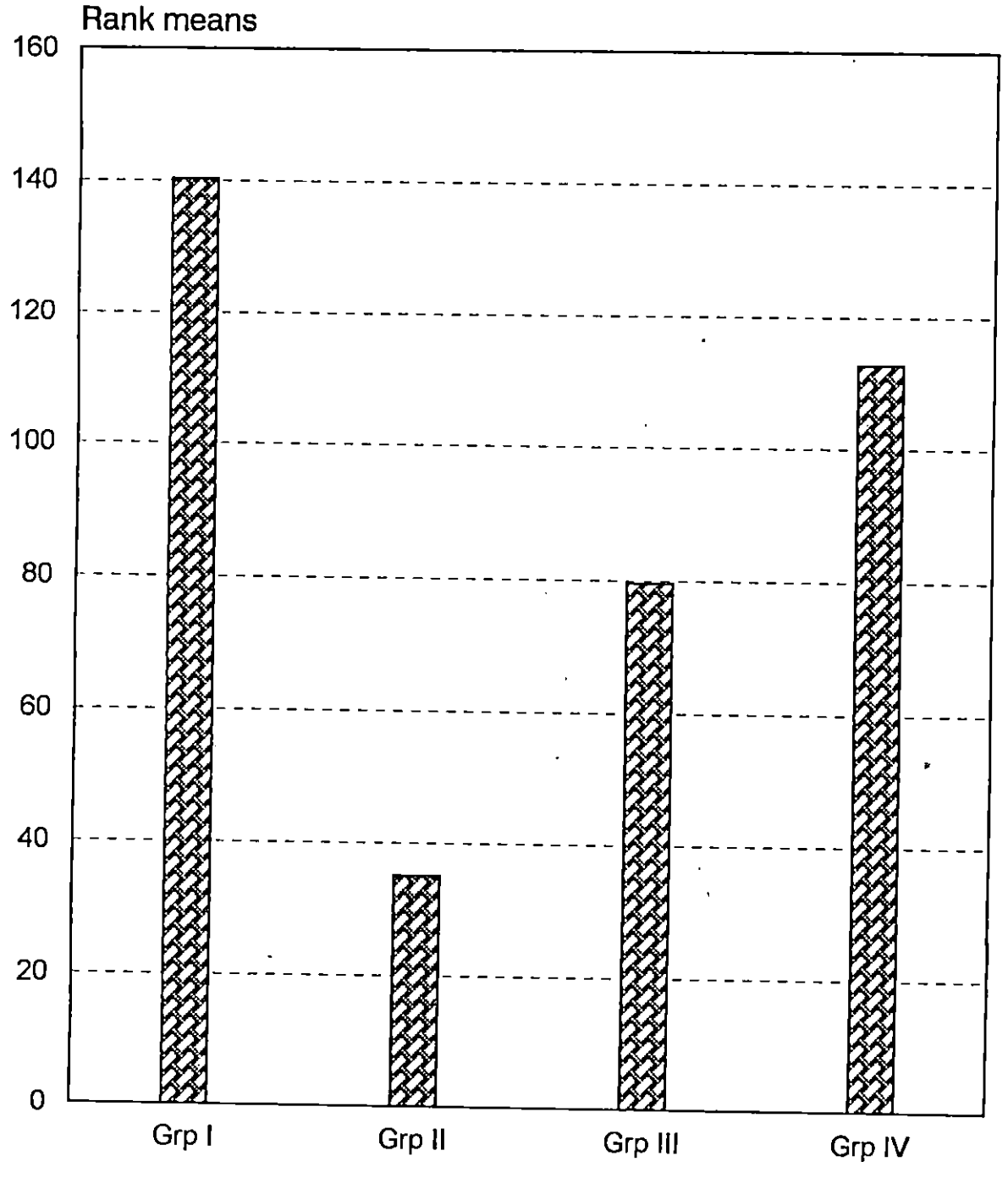
Table 15 Comparison of rice farmers based on their role performance in independent decision making in rice farming

Sl. No	Category of farmers	Rank means	Critical values
1	Men in men headed household (n = 60)	140.28	18.64 (1,2) 22.84 (1,3) 22.84 (1,4)
2	Women in men headed household (n = 60)	35.08	22.84 (2,3) 22.84 (2,4)
3	Women in defacto household (n = 30)	79.60	26.37 (3,4)
4	Women in dejuri household (n = 30)	112.67	

Z value 129.71**

** Significant at 1% level

Fig. 7 Rank means of role performance in Independent decision making of four categories of rice farmers



Grp I - Men in men headed household
Grp II - Women in men headed household
Grp III - Women in defacto household
Grp IV - Women in dejuri household

It is also found from the result that the involvement of women in dejuri household is higher with respect to independent decision making. Reason being, these women being the legal household head due to the permanent absent of their husband are burdened to take all decisions with regard to farm and home independently. In case of women in defacto due to the temporary absence of their male counterpart they are in position to take some decisions independently. Schematic representation of the results are given in Fig 7.

4.6 **Profile analysis of rice farmers**

4.6.1 **Age**

From Table 16 it is clear that except women in dejuri household, more than 40 per cent of the respondents comes under the age group below 45. In dejuri household majority of the respondents (above 66 per cent) comes under the old age above 55.

Since majority of the respondents comes under the middle age group, their participation in the rice farming is found to be higher compared to the respondents in the dejuri household.

The findings of the study is in agreement with those reported by Sharma and Shilaja (1990) and Menon (1994).

Table 16 Profile of the rice farmers

Sl. No	Variable	Category	Men in men headed household (n-60)			Women in men headed household (n-60)			Women in defacto household (n-30)			Women in dejuri household (n-30)		
			Mean score	Frequency	Percentage	Mean score	Frequency	Percentage	Mean score	Frequency	Percentage	Mean score	Frequency	Percentage
1	Age	High ≥ mean	48.98	34	56.67	41.97	28	46.67	44.47	17	56.67	55.30	20	66.67
		Low < mean		26	43.33		32	53.33		13	43.33		10	33.33
2	Caste	High ≥ mean	2.68	44	71.67	2.68	44	23.33	2.17	13	43.33	2.23	15	50.00
		Low < mean		16	28.33		16	26.67		17	56.67		15	50.00
3	Education	High ≥ mean	4.18	28	46.67	3.73	33	55.00	3.20	14	46.67	2.33	13	43.33
		Low < mean		32	53.33		27	45.00		16	53.33		17	56.67
4	Occupation	High ≥ mean	2.38	23	38.33	1.83	13	21.67	1.13	1	3.33	1.67	5	16.67
		Low < mean		37	61.67		47	78.33		29	96.67		25	83.33
5	Size of wetland	High ≥ mean	93.17	20	33.33	93.17	20	33.33	78.7	14	46.67	72.03	14	46.67
		Low < mean		40	66.67		40	66.67		16	53.33		16	53.33
6	Size of garden land	High ≥ mean	40.08	23	38.33	40.08	23	38.33	24.83	15	50.00	19.00	13	43.33
		Low < mean		37	61.67		37	61.67		15	50.00		17	56.67
7	Annual income	High ≥ mean	19760	25	41.67	19760	25	41.27	18666	14	46.67	11076	11	36.67
		Low < mean		35	58.33		35	58.33	.67	16	53.33	.67	19	63.33
8	Farming experience	High ≥ mean	20.85	31	51.67	14.13	27	45.00	13.8	10	33.33	29.13	17	56.67
		Low < mean		29	48.33		33	55.00		20	66.67		13	43.33
9	Contact with extension agency	High ≥ mean	4.46	32	53.33	1.65	28	46.67	2.53	14	46.67	.67	13	43.33
		Low < mean		28	46.67		32	53.33		16	53.33		17	56.67
10	Exposure to mass media	High ≥ mean	7.72	30	60.00	7.15	23	38.33	10.43	17	56.67	5.93	18	60.00
		Low < mean		30	50.00		37	61.67		13	43.33		12	40.00
11	Cosmopoliteness	High ≥ mean	5.47	33	55.00	3.75	32	53.33	6.10	15	50.00	3.83	16	53.33
		Low < mean		27	45.00		28	46.67		15	50.00		14	46.67
12	Self confidence	High ≥ mean	33.45	40	66.67	33.4	30	50.00	31.87	16	53.33	29.47	12	40.00
		Low < mean		20	33.33		30	50.00		14	46.67		18	60.00
13	Self concept	High ≥ mean	28.50	31	51.67	27.87	34	56.67	26.53	17	56.67	28.13	19	63.33
		Low < mean		29	48.33		26	43.33		13	43.33		11	36.67
14	Scientific orientation	High ≥ mean	11.93	31	51.67	12.58	36	60.00	12.97	19	63.33	11.70	16	53.33
		Low < mean		29	48.33		24	40.00		11	36.67		14	46.67

15	Value orientation	High ≥ mean Low < mean	38.85	25 35	41.67 58.33	39.95	35 25	58.33 41.67	39.30	12 18	40.00 60.00	38.43	14 16	46.67 53.33
16	Economic motivation	High ≥ mean Low < mean	23.75	36 24	60.00 40.00	21.95	37 23	61.67 38.33	23.27	21 9	70.00 30.00	24.40	14 16	46.67 53.33
17	Risk orientation	High ≥ mean Low < mean	13.40	27 33	45.00 55.00	13.63	33 27	55.00 45.00	13.80	16 14	53.33 46.67	12.43	18 12	60.00 40.00
18	Innovation proneness	High ≥ mean Low < mean	4.31	30 30	50.00 50.00	4.80	28 32	46.67 53.33	4.39	16 14	53.33 46.67	4.04	12 18	40.00 60.00
19	Knowledge in farming	High ≥ mean Low < mean	4.84	31 29	51.67 48.33	2.22	26 34	43.33 56.67	2.88	17 13	56.67 43.33	2.67	14 16	46.67 53.33
20	Extent of adoption	High ≥ mean Low < mean	57.40	25 35	41.67 58.33	34.89	29 31	48.33 51.67	39.79	12 18	40.00 60.00	39.37	9 21	30.00 70.00
21	Attitude towards rice based farming system	High ≥ mean Low < mean	46.08	33 27	55.00 45.00	44.67	37 23	61.67 38.33	46.50	18 12	60.00 40.00	44.53	18 12	60.00 40.00

4.6.2 **Caste**

More than 70 per cent of respondents in men headed household, 43 per cent in defacto and 50 per cent in dejuri household belonged to the forward community. Majority of the land owning farmers in Kerala belonged to the forward community, all the marginal farmers were usually agricultural labourers. This might be the reason for the majority of respondents belonging to forward caste.

The result of this study is in line with the findings of Sharma and Sinha (1970), Shilaja (1990) and Bhople and Patki (1992).

4.6.3 **Education**

Majority of the respondents (above 50 per cent) in men headed household and women in defacto household were having middle school level of education. Whereas more than 55 per cent of the respondents in dejuri household were able to read and write only.

Since Kerala state is having cent per cent literacy irrespective of gender all the people are given primary level of education and school drop outs will occur only after undergoing the primary level of education.

The result is in accordance with the findings of Thenmozhi (1990) and Varma (1996).

4.6.4 Occupation

Majority of the respondents (above 60 per cent) in all the four category had agriculture as their main occupation.

Reason being the majority of respondents selected for the study purpose were having farming as their primary occupation.

The findings of this study is in conformity with the studies reported by Shanmugavadivu (1992) and Boniface (1996).

4.6.5 Size of wetland

Only thirty three per cent of the respondents in men headed household were having the land holding more than 90 cents, whereas 47 per cent of the respondents in defacto and dejuri household were having the area under wetland more than 70 cents.

4.6.6 Size of garden land

More than 50 per cent of the respondents in all the four groups possessed garden land below fourty cents.

In Kerala the land was fragmented too much and size of holdings were small. So the area owned by the respondents was not sufficient, it is found to be less than 1 acre.

The result is in line with the findings of Seema (1986), Anithakumari (1989), Thakur (1991) and Varma (1996).

4.6.7 **Annual income**

More than 40 per cent of the respondents in the men headed household and women in defacto households were having an annual income of above Rs 18,000, whereas in dejuri household 60 per cent of them were having annual income Rs 11,000.

From the result it could be inferred that almost all the respondents were above the poverty line.

The result is in accordance with the findings of Shanmugavadivu (1992) and Devi (1994).

4.6.8 **Farming experience**

More than 50 per cent of men in men headed household and women in dejuri household were having farming experience above twenty years. Whereas 45 per cent of women in men headed household were having farming experience fourteen years and in defacto household more than 65 per cent of them were having farming experience less than thirteen years.

It was observed from the result women in dejuri household were having high farming experience, due to permanent absence of male members in the household, they are forced to involve in farming activities very early. Whereas in the case of men in men headed household their main occupation is farming. So they had been engaged in farming from very young age itself.

The result is in conformity with the findings of Vimala (1989), Devi (1994) and Vijayalakshimi (1995).

4.6.9 **Contact with extension agency**

More than 43 per cent of women in men headed household, defacto and dejuri households and 53 per cent of men in men headed household were having frequent contact with extension agencies.

In men headed household when extension personnel visit their house the male farmer allow their female counterpart to discuss the farming aspects with the extension worker. In other two sets, they are forced to contact extension agents to rectify their doubts enquire about the availability of seed materials due to the absence of male members.

The results of this study is in line with the findings of Thimmaraju (1989) and Nizammudeen (1996).

4.6.10 Exposure to mass media

Except women in men headed household majority (more than 50 per cent) of the respondents selected for the study purpose had high exposure to various mass media.

In Kerala due to high literacy level majority of farm families subscribe one news paper, possess radio and television. This provides them opportunities to know about the various agricultural aspects.

The result is in conformity with the findings of Nizamudeen (1996), Varma (1994) and Sangeetha (1997).

4.6.11 Cosmopoliteness

More than 50 per cent of respondents selected in all the four categories were having high cosmopolite score.

In Kerala the distance between the town and farm is not so far. And these farmers has to frequently visit the nearby town and cities for agriculture and non-agricultural aspects.

The findings of the study is in concurrence with the findings reported by Sumathy (1987), Nizamudeen (1996) and Shanthy (1997).

4.6.12 **Self confidence**

Sixty seven per cent of men headed farm families and more than 50 per cent of women in men headed and defacto household and 40 per cent of women in dejuri household were having high self confidence.

Their participation in decision making on various farm and home activities might be due to the high self confidence.

The result is in accordance with the findings of Joseph (1983), Nizamudeen (1996), Varma (1996) and Sangeetha (1997).

4.6.13 **Self concept**

More than 55 per cent of women respondents selected for the study purpose when compared to men in men headed household (51 per cent).

When compared to other three categories of farmers more than 63 per cent of women in dejuri household were having high self concept,. because these women were sole head of the farm family, automatically her opinion and decision was the final one in the household. Whereas women in men headed household were always consulted by her male counterpart with regard to financial aspects, management of animals and post-harvest operations etc. And women in defacto household due to

the temporary absence of men she is compelled to manage their farm and home, as a result they have developed a high self concept.

The result is in line with the findings of Joseph (1983).

4.6.14 **Scientific orientation**

More than 50 per cent of all the respondents were having high scientific orientation.

Majority of the respondents actively participated in performing field activities and taking decisions with regard to farm activities. The high scientific orientation contributes towards their increased participation in various farm and home activities. Another reason for their high scientific orientation might be due to high extension agency contact and exposure to mass media.

The result supports the findings of Kareem (1984), Raji (1991) and Sangeetha (1997).

4.6.15 **Value orientation**

Sixty per cent of respondents in defacto, 53 per cent in dejuri and 58 per cent of men in men headed household were having low value orientation, whereas 58 per cent of women in men headed household were having high value orientation.

One reason for low value orientation for majority of respondents might be due to the fact that the traditional outlook of the people is undergoing change at a faster rate. Moreover women are shouldered with the responsibility of managing the farm by herself, so she has to go outside and work like men.

The result is in conformity with the findings of Hussain (1994).

4.6.16 **Economic motivation**

Majority of the respondents (above 60 per cent) in men headed household and defacto household were having high economic motivation, whereas 47 per cent of respondents in dejuri household were having high motivation score.

Majority of respondents selected for the study purpose were having farming as their main occupation. So their main motive is to harvest maximum from their available land utilising improved technologies. Moreover these farmers were having high scientific orientation, frequent contact with extension agency contact and mass media participation. All these factors contribute for the high economic motivation score.

The result support the findings of Nizamudeen (1996) and Varma (1996).

4.6.17 **Risk orientation**

More than 50 per cent of women respondents selected for study were having high risk orientation score when compared to men in men headed household (45 per cent).

Absence of male member in defacto and dejuri households compel the women to adopt some improved practices and take rational decisions with regard to farm and home activities. Their main motive is to get maximum profit from the farm. The management of the house is also vested upon the shoulder's of the womenfolk and they strive hard to uplift the economic condition of the household. So women in men headed farm family influence her husband to take some risk with regard to the adoption of improved technology in farm enterprise.

The result is in accordance with the findings of Nelson (1992) and Varma (1996).

4.6.18 **Innovation proneness**

Fifty per cent of men in men headed household, 53 per cent of women in defacto household, 47 per cent of women in men headed

household and 40 per cent of women in dejuri household were having high innovation proneness.

The result is in line with the findings of Gurusamy (1987) and Fathima (1993).

4.6.19 **Knowledge in rice farming**

Fifty two per cent of men in men headed household, 57 per cent of women in defacto household, 47 per cent of women in dejuri household and 43 per cent of women in men headed household were having high knowledge in rice farming.

This is because of their frequent contact with extension agency, exposure to mass media and high scientific orientation automatically their knowledge will also high.

This result is in conformity with the findings of Jnanadevan (1993), Menon (1994) and Devi (1994).

4.6.20 **Extent of adoption**

Only 40 per cent in the first three group and 30 per cent in dejuri household were having high extent of adoption.

Eventhough they possess high economic motivation, scientific orientation and innovation proneness, some hurdles limit them to adopt scientific technology at their field level.

The findings of this study is in conformity with the studies reported by Nanjaiyan (1984), Jnanadevan (1993) and Parvati (1995).

4.6.21 Attitude towards rice based farming system

More than 55 per cent of all the respondents selected were having high attitude towards rice based farming system.

This is so because instead of cultivating rice alone inclusion of livestock enterprise provides additional income also these two enterprise are complementary to each other. Because of this the farm family can tackle crisis situation.

The result of this study is in line with the findings of Seema (1986), Shilaja (1990), Boniface (1996) and Varma (1996).

4.7 Comparison of rice farmers based on selected personal and psychological characteristics

4.7.1 Age

A view at the Table 17 shows that, there exist a significant difference among the different groups of farmers with respect to age. It

Table 17 : Comparison of rice farmers based on the selected personal and psychological characteristics .

Sl. No	Characteristics	Mean value				CD Value			F Value
		Group I (n=60)	Group II (n=60)	Group III (n=30)	Group IV (n=30)	(1,2)	(1,3) (1,4) (2,3) (2,4)	(3,4)	
1	Age	48.98	41.97	44.47	55.30	2.808	3.439	3.971	21.73**
2	Caste	2.70	2.70	2.17	2.23	0.234	0.286	0.331	7.61**
3	Education	4.18	3.73	3.20	2.33	0.453	0.555	0.641	15.41**
4	Occupation	2.38	1.83	1.13	1.67	0.555	0.679	0.784	4.64**
5	Area under wetland	93.16	93.16	78.70	72.03	22.440	27.480	31.740	1.09
6	Area under garden land	40.08	40.08	24.83	19.00	13.460	16.480	19.030	2.73**
7	Annual income	19760.00	19760.00	18666.00	11076.00	2996.900	3670.430	4238.240	8.48**
8	Farming experience	20.85	14.11	13.80	29.13	4.240	5.190	5.990	13.10
9	Contact with extension agency	4.47	1.65	2.53	1.67	0.500	0.612	0.706	48.96**
10	Exposure to mass media	7.72	7.15	10.43	5.93	0.980	1.205	1.392	14.80**
11	Cosmopoliteness	5.47	3.75	6.10	3.83	0.441	0.540	0.623	37.48**
12	Self confidence	33.45	31.40	31.87	29.47	1.376	1.686	1.947	7.57**
13	Self concept	28.50	27.87	26.53	28.13	2.094	2.565	2.960	0.772
14	Scientific orientation	11.93	12.58	12.97	11.70	1.495	1.832	2.115	0.706
15	Value orientation	38.85	39.95	39.30	38.43	2.863	3.507	4.050	0.307
16	Economic motivation	23.75	21.95	23.27	24.40	1.357	1.661	1.920	3.598**
17	Risk orientation	13.40	13.63	13.80	12.43	1.350	1.268	1.640	1.436
18	Innovation proneness	4.31	4.80	4.39	4.04	0.541	0.662	0.764	1.982
19	Knowledge in rice farming	4.84	2.22	2.88	2.67	0.460	0.564	0.650	46.33**
20	Extent of adoption	57.40	34.89	39.79	39.79	4.571	5.598	0.460	34.56**
21	Attitude towards rice based farming system	46.08	44.67	46.50	44.53	3.124	3.827	4.420	0.520

** Significant at 1% level.

is found that the women in dejuri household belonged to old age, and all the other farmers belonged to middle age.

4.7.2 Caste

Data presented in the Table 17 indicates that there exist a significant difference among four groups of farmers selected for study purpose. Farmers in men headed household belonged to forward caste and majority of women farmers in defacto and dejuri belonged to other backward communities.

In Kerala majority of farmers belonged to forward and backward caste and majority of the agricultural labourers belonged to scheduled caste. Since the respondents selected for the study is farmers, it might be the reason for the farmers belonging to forward or backward caste.

4.7.3 Education

With respect to education that there exist significant difference among the four categories of farmers. Men farmers from men headed households were having middle school level of education, women in men headed and defacto households were having education upto primary level whereas women in dejuri households were able to read and write only.

The high educational status of the respondents is attributed to the high literacy level of Kerala.

4.7.4 Occupation

There exist no significant difference among the different categories of farm women with respect to their occupational status. Here, majority of the respondents in men headed household and other households were having farming as their main occupation.

4.7.5 Area under wetland

There exist no significant difference among four categories with respect to area under wetland, the average holding of wetland ranged between 78-93 cents.

4.7.6 Area under garden land

The average holding of garden land in group one was 40 cents, whereas the size of garden land with respect to women defacto and dejuri household were below 25 cents. It is also found that farmers in men headed household differ significantly from other two groups. Whereas farm women in defacto and dejuri household were on par.

4.7.7 Annual income

The annual income of Group I, Group II and Group III differ significantly from that of farmers under dejuri household. Whereas the

Group I, II and III were on par with each other. Annual income was found to be lowest in dejuri household.

Since men in dejuri household are permanently absent, for majority of field activities they depend upon wage labourers. In Kerala the wage rate is very high so the profit obtained by the women farmers in dejuri household is found to be lower, compared to other categories of farmers.

4.7.8 **Farming experience**

With respect to farming experience the women farmers in dejuri household was found to have high farming experience and they differ significantly from other three categories of rice farmers. Men in men headed household were significantly superior to women in men headed household and defacto household.

From the very early age itself, women in dejuri household might have engaged in farming due to the permanent absence of their male member, whereas in the case of men, since agriculture is their main occupation they might have engaged in it from very young age itself.

4.7.9 **Contact with extension agency**

Men in men headed household is significantly superior to other three group with respect to contact with extension agency followed by

women in defacto households. Women in defacto household were superior to women in men headed household and women in dejuri household. Whereas no significant difference between women in men headed and dejuri household.

Men in men headed household being head of farm family they had more opportunity to contact the extension agents than the women in this household. In the case of defacto household due to the absence of men the women in this household clarify their doubts in rice farming by contacting extension agents. Whereas the women in dejuri household could not get the opportunity to meet the extension personnels due to lack of time, as they have to take care of both farm and home. This might be the reason for the low mean score with respect to this variable.

4.7.10 **Exposure to mass media**

Women in defacto were having maximum mean score with respect to exposure to mass media and they differ significantly with other three groups followed by men in men headed household. Also women in men headed household is significantly superior to women in dejuri household.

4.7.11 **Cosmopoliteness**

With respect to cosmopoliteness women in defacto household were significantly superior to other three categories of farmers followed

by men in men headed household. Whereas women in dejuri and men headed households were on par.

Due to the temporary absence of the male members, the men in defacto household might have given some responsibilities to their women counterpart which requires frequent visit to the nearest town for purchase etc. Whereas men in men headed household being the farm heads they do majority of outside activities in addition to farming whereas women in dejuri due to then old age might have engaged workers or elder family members to visit the nearby town for any purchase.

4.7.12 **Self confidence**

With regard to self confidence women in dejuri household is found to be inferior to other three groups. Men in men headed household is found to be superior to their female counterpart and were on par with women in defacto household.

Majority of respondents in dejuri household belonged to old age and as one grow older, their confidence level will also reduce. This is because of the loss of physical and mental strength. Whereas men being the head of the household, they shoulder the responsibility of farm and home activities, automatically they will have adequate self confidence to perform various farm and home activities. In the case of defacto women

even though she is temporarily performing various activities by themselves they will develop the mental capacity to carry various activities by themselves.

4.7.13 **Economic motivation**

With respect to economic motivation there exist a significant difference between men in men headed household and women in men headed, defacto and dejuri household. There exist no significant difference between the three groups. Women in men headed is found to be inferior to all other three groups.

Women in men headed household does not directly involve in field activities whereas the other three groups are directly involved in farm activities, they will have the motivation to get more profit from the farm by adopting various improved agricultural practices.

4.7.14 **Knowledge in rice farming**

Men in men headed household is significantly superior to all the categories of farmers selected for study purpose. Women in defacto household were having high knowledge when compared to women in men headed household and were on par with women in dejuri household.

Due to their direct involvement in farming the three groups might have acquired knowledge about improved agricultural practices by meeting extension personnel and exposure to mass media.

4.7.15 **Extent of adoption**

Men in men headed household were having high extent of adoption when compared to other three groups, whereas women in men headed household and dejuri household were on par and superior to women in men headed household.

This is also due to the direct involvement in farming activities where they acquire more knowledge with regard to farming and they will convince themselves and put them into practice.

From the discussion the hypothesis that there exist no significant difference among the rice farmers with respect to age, caste, education, occupation, farming experience, contact with extension agency, exposure to mass media, self confidence, cosmopoliteness, knowledge in rice farming and extent of adoption is rejected and alternative hypothesis was accepted.

There exist no significant differences among the four categories of farmers with respect to self concept, scientific orientation, innovation proneness, value orientation, risk orientation and attitude towards rice

based farming system. Hence the hypothesis that there exist no significant difference among four categories of rice farmers with respect to self concept, scientific orientation, innovation proneness, value orientation, risk orientation and attitude towards rice based farming system was accepted.

4.8 Relationship of selected characteristics with the dependent variables

4.8.1 Relationship of selected characteristics with role perception in rice farming activities by four categories of rice farmers.

A view of the Table 18 revealed that with regard to men in men headed household, among the independent variables only four variable like area under wetland annual income, innovation proneness and knowledge in rice farming was negatively and significantly correlated with role perception in rice farming (Fig 8).

The reason might be due to the fact, that since perception is based on one's experience and extent of involvement in farming, mere acquisition of wetland may not result in the increased perception of an individual. Annual income contribute more towards the economic improvement of the farmer rather than his perception about a particular role in rice farming. Innovation proneness and knowledge in farming also showed a negative correlation with role perception. Reason being

Table 18 Correlation coefficient ® of independent variables with role perception in rice farming activities by four categories of rice farmers

Variable No	Independent variable	'r' value			
		Men in men headed household (n-60)	Women in men headed household (n-60)	Women in defacto household (n-30)	Women in dejuri household (n-30)
1	Age	-0.0153	-0.0605	-0.0944	0.3404
2	Caste	0.1789	0.0940	-0.4930**	0.0727
3	Education	0.1641	-0.0594	0.3634	0.2627
4	Occupation	0.0542	0.0160	0.1238	-0.4042*
5	Area under wetland	-0.3537**	0.0619	0.1166	-0.0174
6	Area under garden land	-0.2530	-0.0044	0.2276	-0.2987
7	Annual income	-0.4650**	0.1191	-0.1989	-0.1974
8	Farming experience	-0.2012	0.0369	-0.1614	0.1562
9	Contact with extension agency	-0.2594	0.1211	0.1520	-0.0497
10	Exposure to mass media	0.0586	-0.0326	-0.0011	0.1571
11	Cosmopoliteness	-0.1779	-0.0441	0.0508	-0.1913
12	Self confidence	-0.0763	0.0940	-0.0073	-0.1718
13	Self concept	0.1343	0.2158	-0.1317	0.0496
14	Scientific orientation	-0.4857	0.1695	-0.1707	-0.2090
15	Value orientation	-0.1030	0.0681	0.3469	0.1796
16	Economic motivation	-0.1138	-0.0744	0.2108	0.3170
17	Risk orientation	-0.0059	0.1558	0.2228	-0.2765
18	Innovation proneness	-0.3984**	0.2919*	-0.2801	0.0629
19	Knowledge in rice farming	-3153*	0.2312	-0.2056	-0.4888**
20	Extent of adoption	-0.0441	0.2753*	-0.2584	-0.3844*
21	Attitude towards rice based farming system	0.0089	-0.0309	0.1855	0.1683

* Significant at 5 % level
** Significant at 1 % level

these two variable will result in increased adoption of any new technology or practice in farming. Whereas perception is based on ones performance. The result is in line with the findings of Alex (1994).

In view of the above discussion, the null hypothesis was rejected for variables like proneness and knowledge in rice farming which showed a significant and negative correlation with role perception in rice farming activities, whereas the null hypothesis was accepted with regard to other variables.

In the case of women in men headed household, extent of adoption and innovation proneness showed a highly significant and positive correlation with role perception of women in rice farming (Fig 9).

In men headed household, since the women are involved more in household enterprise rather field activities. So they are not aware of the practices being followed in the field. So if the women is more innovative, she will adopt the practice if she perceive it to be more advantageous and suited to her farming situation. This might be the reason for the positive relationship. The result is in line with the findings of Balan (1987). In this case the null hypothesis was accepted but for variables such as extent of adoption and innovation proneness

Independent variables

X_1 - Age
X_2 - Caste
X_3 - Education
X_4 - Occupation
X_5 - Area under wetland
X_6 - Area under gardenland
X_7 - Annual income
X_8 - Farming experience
X_9 - Contact with extension agency
X_{10} - Exposure to massmedia
X_{11} - Cosmopoliteness
X_{12} - Self confidence
X_{13} - Self concept
X_{14} - Scientific orientation
X_{15} - Value orientation
X_{16} - Economic motivation
X_{17} - Risk orientation
X_{18} - Innovation proneness
X_{19} - Knowledge in rice farming
X_{20} - Extent of adoption
X_{21} - Attitude towards rice based farming system

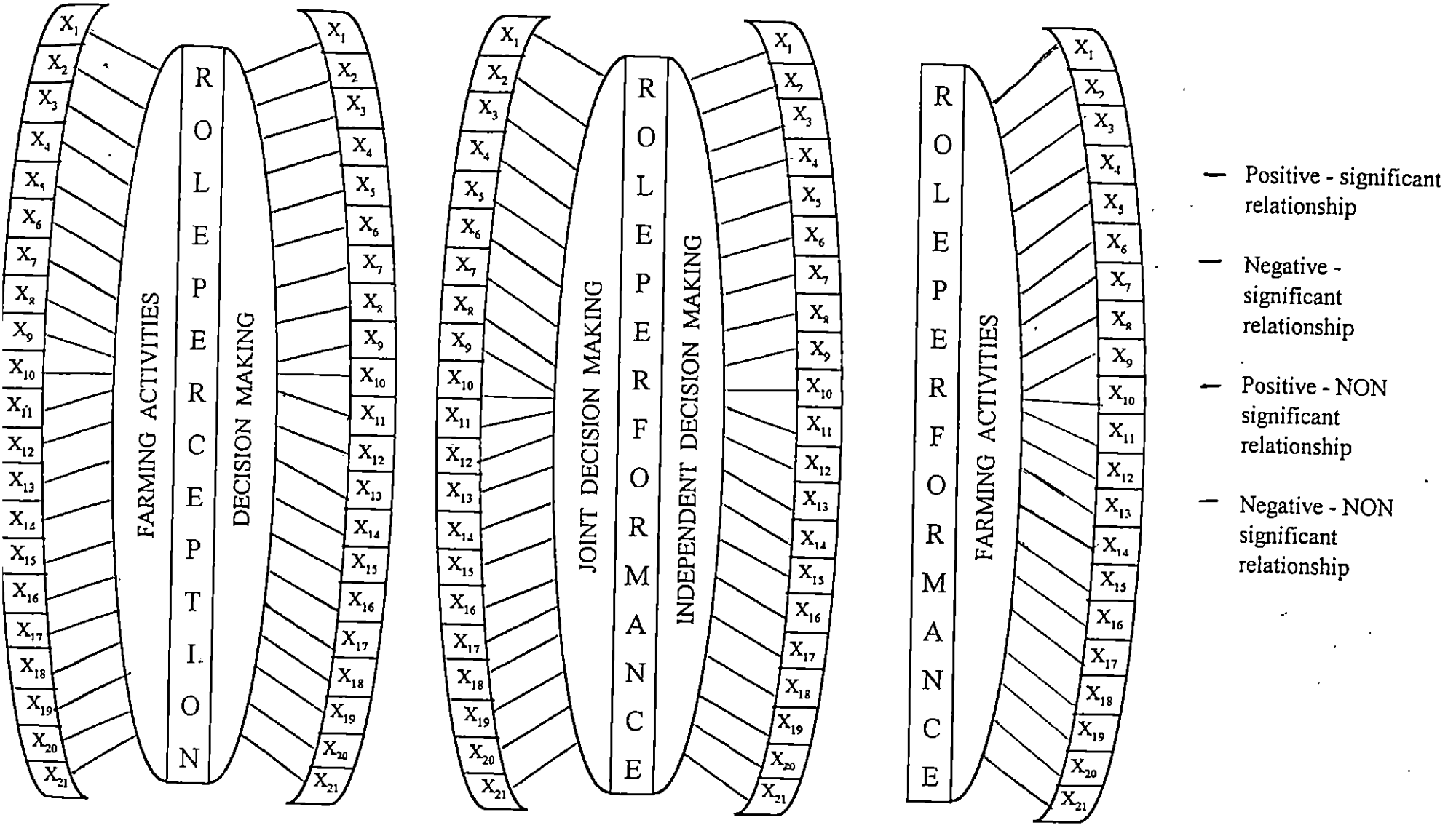


Figure 8: **Correlation between dependent and Independent Variables with regard to men in men headed household**

which showed a significant and positive correlation with role perception in rice farming activities the null hypothesis was accepted.

As far as women in defacto household is concerned only caste was found to be negatively correlated with the role perception (Fig 10).

In rice farming the involvement of both men and women in different activities to some extent is contributed by caste. While perception is purely based on ones thinking and it has got nothing to do with caste. Hence the negative correlation between caste and role perception. Closely related result was reported by Balan (1987). The null hypothesis was rejected for only one variable caste.

With respect to women in dejuri household three variable occupation, level of knowledge and extent of adoption showed a significant and negative correlation (Fig 11).

Since the women in this household though being a farmer her involvement in field activities is very limited.

Performance is based on how one perceive his role. So even if the women possess adequate knowledge and adopt the practices because of her poor performance her perception is also low, it might be the reason for the negative correlation.

This finding was supported by Manoharan (1979), Seema (1986) and Alex (1994). The hypothesis was accepted but for variables namely occupation, level of knowledge and extent of adoption.

4.8.2 Relationship of selected characteristics with role perception in decision making by four categories of rice farmers

From Table 19 it could be seen that in the case of men in men headed household, age is the only variable which showed a positive and highly significant correlation with role perception in decision making. Another variable which showed a significant and negative correlation was contact with extension agency (Fig 8).

From the result it is seen that age had a positive and highly significant correlation with role perception. Badiger (1979) found that the degree of involvement in farming is based on age. So age had a influence on the performance.

Performance itself is based on one's perception so there is direct relationship between age and perception in decision making. The reason for the negative correlation of extension agency contact is that the contact of farmer with extension agency might have resulted in the transfer of new aspects of farming. But the acceptance of new technology is mainly based on how one perceive it, that is whether it is

Table 19 Correlation coefficient (r) of independent variables with role perception in decision in rice farming by four categories of rice farmers.

Variable No	Independent variable	'r' value			
		Men in men headed household (n-60)	Women in men headed household (n-60)	Women in defacto household (n-30)	Women in dejuri household (n-30)
1	Age	0.0359**	-0.0657	-0.0661	-0.0554
2	Caste	-0.2450	0.3328*	-0.1868	-0.1951
3	Education	-0.0419	-0.1718	0.1616	0.3321
4	Occupation	-0.0667	0.0783	0.2296	0.0408
5	Area under wetland	-0.3071	0.0764	0.3782	0.0626
6	Area under garden land	-0.1376	0.0988	0.0695	-0.0503
7	Annual income	-0.4663	0.3060*	0.1386	-0.0005
8	Farming experience	-0.1306	-0.0540	-0.2507	-0.0749
9	Contact with extension agency	-0.2674	0.0864	0.0737	-0.0221
10	Exposure to mass media	-0.1169	0.1153	0.4390	0.3006
11	Cosmopoliteness	-0.1485	-0.1386	0.5133	-0.1488
12	Self confidence	-0.0772	0.0254	-0.0001	-0.2833
13	Self concept	0.1669	0.0494	0.0030	-0.0072
14	Scientific orientation	-0.2195	0.1747	0.2485	-0.3264
15	Value orientation	-0.0742	0.0621	0.0105	-0.2058
16	Economic motivation	-0.1856	0.0323	0.3247	0.4516*
17	Risk orientation	0.0669	0.2912*	0.3406	-0.1014
18	Innovation proneness	-0.0022	0.2004	-0.3027	-0.1946
19	Knowledge in rice farming	-0.1643	0.1285	0.2300	-0.1950
20	Extent of adoption	-0.0652	0.1153	0.1735	-0.1351
21	Attitude towards rice based farming system	-0.0979	-0.1862	0.1431	0.1094

* Significant at 5% level
** Significant at 1% level

advantageous or not. Also the perception of the farmers may vary. So we can not say that the contact with extension agency will result in high role perception of farmers in decision making. The result is in accordance with the findings of Balan (1987). The null hypothesis stating that there exist no positive and significant relationship between independent variables with role perception in decision making was rejected for variables like age which showed a positive correlation and contact with extension agency which showed a negative and significant relationship.

With respect to women in men headed household, among the independent variable selected for the study purpose, there variables such as caste, annual income and risk orientation showed a positive and significant correlation with role perception in decision making (Fig 9).

Dak *et al.* (1980) revealed that the contribution of higher caste women in agriculture was significantly lower than that of lower caste women. Since majority of the farmers belonged to high caste their involvement in farming is also not high. This might be the reason for the poor role perception of women. Another variable which showed a positive correlation was income. This is quite natural because higher annual income from agriculture and other sources will motivate the farmers towards successful farming. So annual income influence the perception of farmer in decision making. The positive relationship

Independent variables

X_1 - Age
X_2 - Caste
X_3 - Education
X_4 - Occupation
X_5 - Area under wetland
X_6 - Area under gardenland
X_7 - Annual income
X_8 - Farming experience
X_9 - Contact with extension agency
X_{10} - Exposure to massmedia
X_{11} - Cosmopoliteness
X_{12} - Self confidence
X_{13} - Self concept
X_{14} - Scientific orientation
X_{15} - Value orientation
X_{16} - Economic motivation
X_{17} - Risk orientation
X_{18} - Innovation proneness
X_{19} - Knowledge in rice farming
X_{20} - Extent of adoption
X_{21} - Attitude towards rice based farming system

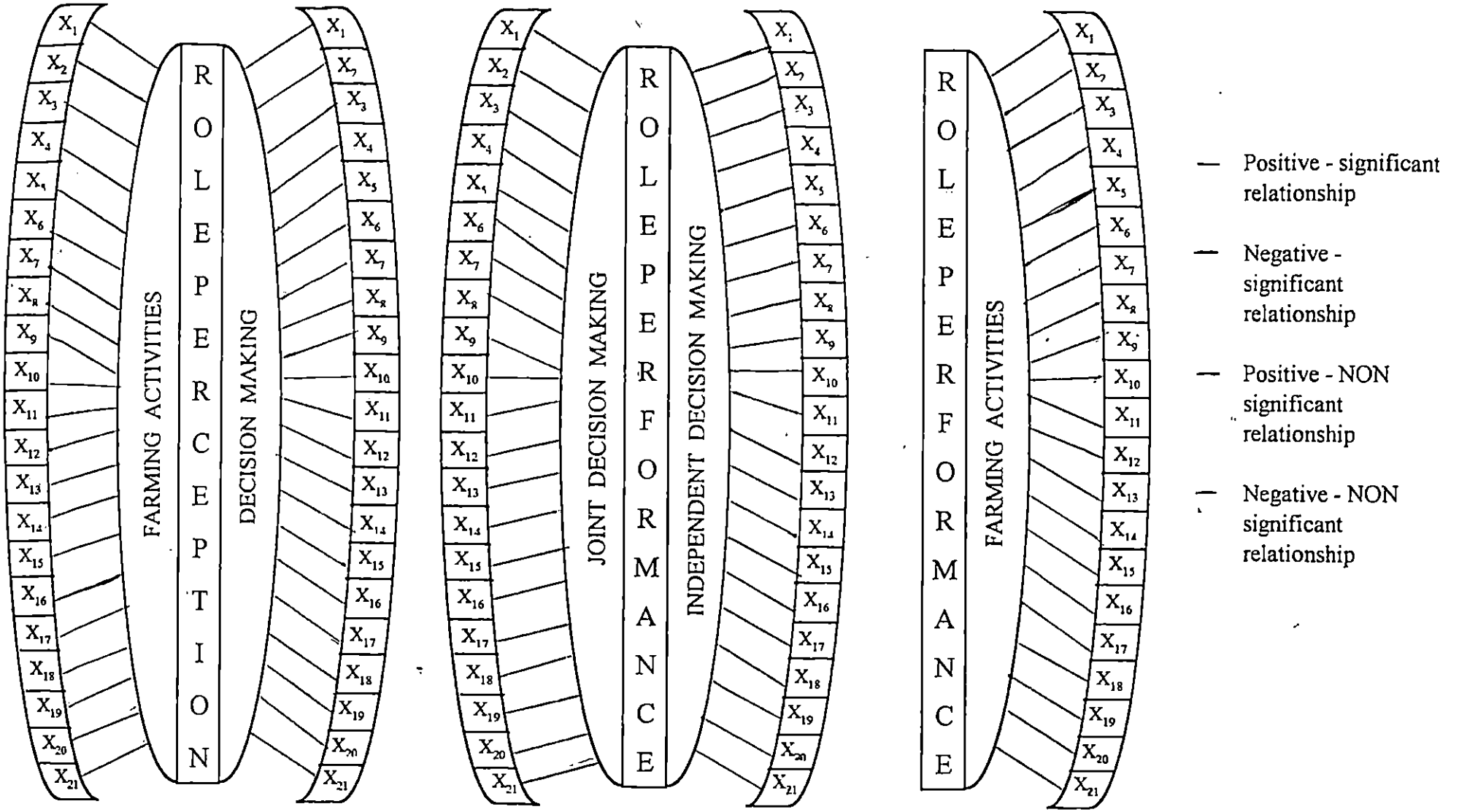


Figure 9: **Correlation between dependent and Independent Variables with regard to women in men headed household**

between risk orientation and role perception might be due to the fact that, since agriculture itself is an occupation full of risk like limited rainfall, marketing situation etc. The farmer should be in a position to face whatever risk he come across in farming. So the farmer with high risk taking ability can only prolong farming. The result is in line with the findings of Balan (1987). Except in the case of variables like caste, annual income and risk orientation the null hypothesis stating that there exist no significant and positive relationship between independent variables and role perception in decision making was accepted.

In the case of women in defacto household a view of the Table 19 shows that three variables namely cosmopoliteness, area under wetland and exposure to mass media showed a positive and significant correlation with role perception in decision making (Fig 10).

The more cosmopolite the farmer more will be his innovativeness which in turn improve his decision making ability which will lead to the increased perception of the farmer. Area under wetland is another variable that influence the perception of women farmer in decision making. It is a fact that the size of holding and extent of participation of women farmers is directly related. The more the farm size the farmer will slowly engage the labourers and this will automatically reduce the involvement of women in farming and her role in decision making. Another variable which showed a positive correlation is exposure to

mass media. Reason being the farmer who has got a good exposure to mass media would develop a favourable attitude towards the latest developments in farming. This will lead to the better perception of the farmer about his role in rice farming activities. The result of this study is supported by the findings of Balan (1987). The null hypothesis was accepted but for variables namely cosmopoliteness, area under wetland and exposure to mass media which showed a positive and significant relationship with role perception in decision making.

With respect to women in dejuri household, economic motivation showed a positive and significant relationship with the role perception in decision making (Fig 11).

Many factors are involved in the development of an individuals value system, which in turn affects one's perception of the situation at a particular task. Generally economic conditions and personal situation at a particular point of time may have significant impact on an individuals behaviour on the work. So a economically motivated farmer might have a good perception of his role in farm decision making.

The null hypothesis stating that there exist no positive and significant relationship between independent variables and role perception in decision making was rejected for one variable namely economic motivation.

4.8.3 Relationship of selected characteristics with role performance of four categories of rice farmers in rice farming activities

Data presented in Table 20 revealed that among the twenty variables only occupation of the respondent were found to have a significant but negative relationship with role performance of men in rice farming activities (Fig 8).

Reason being whatever may be the occupation success in any enterprise depends on to what extent they actively participate in it. The finding is in line with the study conducted by Shanmugavadivu (1992). In the case of men headed household, the null hypothesis was accepted but for one variable occupation which showed a significant but negative correlation with regard to role performance in rice farming activities.

With regard to women in men headed household, area under wetland was found to exhibit positive and significant relationship with role performance, whereas occupation and education were found to be negatively correlated (Fig 9).

Since the area under wetland increases, the participation of women farmers also will be more. Because their male counterpart can not take care of all the activities alone. So they engage their wives to carry out some of the activities in the field like supervision etc. This

Table 20 Correlation coefficient ® of Independent variables with role performance in rice farming activities by four categories of rice farmers

Variable No	Independent variable	'r' value			
		Men in men headed household (n = 60)	Women in men headed household (n = 60)	Women in defacto household (n = 30)	Women in dejuri household (n = 30)
1	Age	-0.0830	-0.0834	-0.1438	-0.5846**
2	Caste	-0.1030	0.1388	-0.5914**	-0.2606
3	Education	-0.1451	-0.3641**	-0.1299	0.1808
4	Occupation	-0.2746**	-0.5482**	0.1074	0.2666
5	Area under wetland	0.0436	0.4107	0.1354	0.0717
6	Area under garden land	0.0081	0.0075	-0.0337	0.2702
7	Annual income	-0.2099	0.0302	-0.0726	0.3294
8	Farming experience	-0.0225	0.0521	-0.2158	-0.5483
9	Contact with extension agency	0.0114	0.1988	0.2645	-0.2574
10	Exposure to mass media	-0.0966	0.0670	0.3702*	0.0860
11	Cosmopoliteness	-0.0045	0.0738	0.2727	0.0970
12	Self confidence	-0.1183	0.0358	0.0696	-0.0440
13	Self concept	-0.0034	-0.1539	-0.1375	-0.2257
14	Scientific orientation	0.0676	-0.0533	0.1130	-0.1000
15	Value orientation	-0.1058	-0.1327	0.1117	-0.2475
16	Economic motivation	-0.1322	-0.0082	0.2610	0.2693
17	Risk orientation	-0.0197	-0.0241	0.3645	0.1577
18	Innovation proneness	-0.1371	0.1109	-0.3434	-0.0316
19	Knowledge in rice farming	-0.1461	0.1695	0.0623	0.0522
20	Extent of adoption	0.2162	0.1849	0.1152	0.1773
21	Attitude towards rice based farming system	0.1459	-0.1870	0.0673	-0.0011

* Significant at 5 % level
** Significant at 1 % level

might be the reason for the positive correlation between size of wetland and role performance.

The negative correlation between role performance and education might be due to the fact that with the increase in the level of education their participation in farm activities might decline. That is educated women would have involved themselves in income generating non-farm activities than doing rice farming. Also whatever be the occupation, role performance in any job is said to be efficient in carrying out his role. Eventhough the respondent is a farmer they are not actually performing the field activity. This might be the reason for the negative correlation between occupation and role performance. The result is in line with the findings of Sharma and Singh (1970).

With regard to women in men headed household the null hypothesis was accepted but for three variables like area under wetland which showed a positive and significant relationship, and occupation and education which was negatively correlated with role performance in rice farming activities.

In the case of women in defacto household only exposure to mass media exhibited a significant and positive correlation with role performance, while caste exhibited a significant but negative relationship with role performance (Fig 10).

Independent variables

X_1 - Age
X_2 - Caste
X_3 - Education
X_4 - Occupation
X_5 - Area under wetland
X_6 - Area under gardenland
X_7 - Annual income
X_8 - Farming experience
X_9 - Contact with extension agency
X_{10} - Exposure to massmedia
X_{11} - Cosmopoliteness
X_{12} - Self confidence
X_{13} - Self concept
X_{14} - Scientific orientation
X_{15} - Value orientation
X_{16} - Economic motivation
X_{17} - Risk orientation
X_{18} - Innovation proneness
X_{19} - Knowledge in rice farming
X_{20} - Extent of adoption
X_{21} - Attitude towards rice based farming system

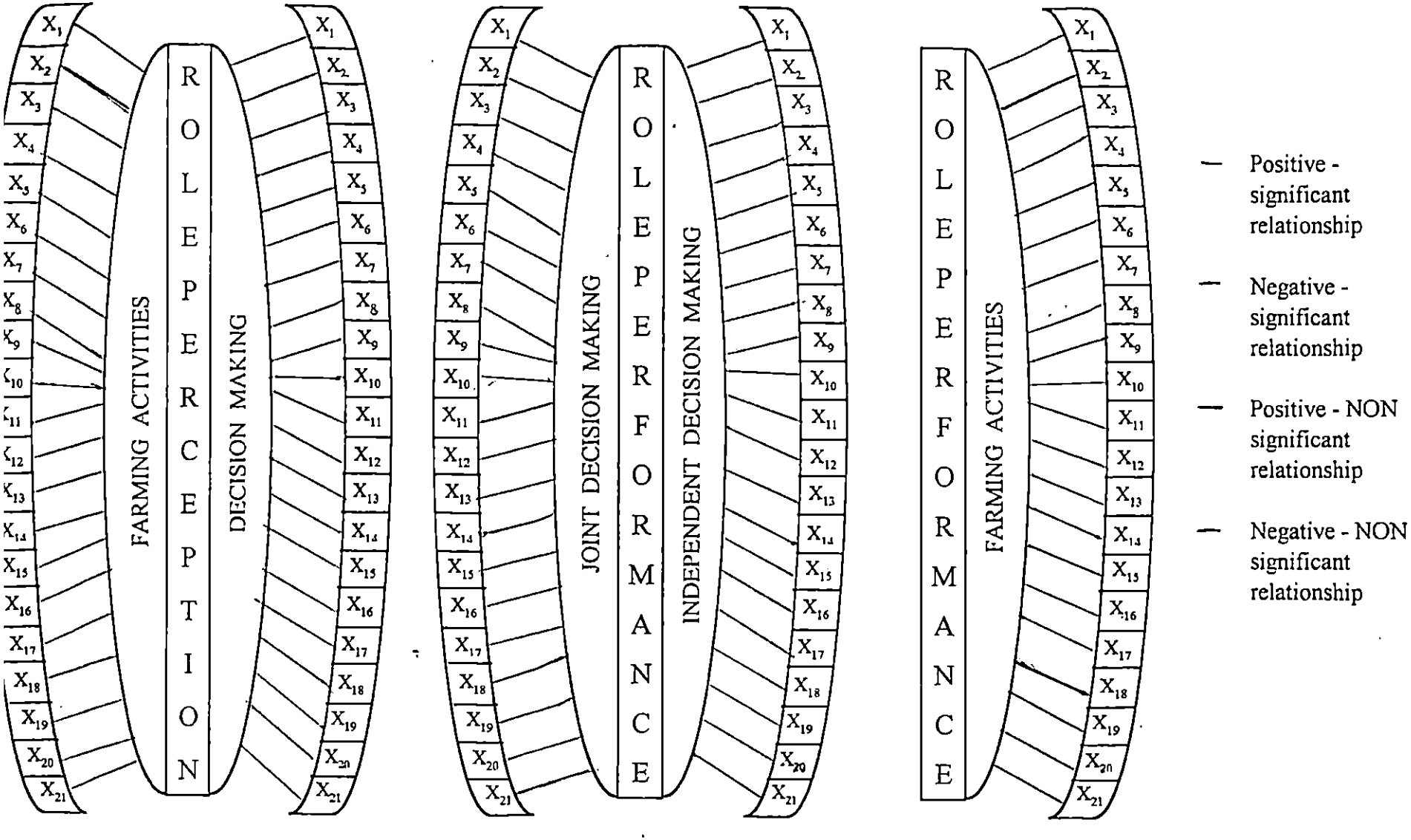


Figure 10: **Correlation between dependent and Independent Variables with regard to women in defacto household**

Women in this household had a good exposure to mass media. As they are given the responsibility to manage the farm they upgrade their knowledge by utilising the various mass media. Also whatever be the caste of these women, they have to perform the activities, since their male counterpart is absent temporarily due to his non farm job. This might be the reason for the negative correlation between caste and role performance.

This is in conformity with the findings of Renukaradhya (1983), Singh and Chander (1983), Singh and Sharma (1988), Punia *et al.* (1991) and Pradeep kumar (1993).

Except two variables exposure to mass media and caste the null hypothesis was accepted for the remaining independent variables.

With regard to women in dejuri household only one variable viz. age showed a highly significant and negative correlation with role performance in rice farming activities. Since majority of the respondents belonged to old age, their capacity to do tedious work in farming decreases. The results are summarised in Fig 11.

The result of this study is in accordance with the findings of Perumal and Uthayakumar (1984), Kalavathi (1989) and Shanmugavadivu (1992). The null hypothesis was accepted but for age.

4.8.4 Relationship of selected characteristics with role performance in joint decision making in rice farming by four categories of rice farmers

A glance at the Table 21 shows that with respect to men farmer only risk orientation showed a positive and highly significant correlation with joint decision making in rice farming whereas self concept showed a negative and significant correlation (Fig 8).

When the decision taken by the men in this household is supported by their female counterpart then he will develop the confidence and he is ready to take the risk by putting the decision to action. This might be the reason for the positive relationship between risk orientation and role performance in joint decision making. Another variable which showed a negative correlation is self concept. Reason being, individual who lack self concept will always depend on others for decision making, whereas if he is having self concept he can take good decisions. Then he is sure to put the decision to action.

From the above discussion the hypothesis, that there exist no significant relationship between the independent variables and role

Table 21 Correlation coefficient (r) of independent variable with role performance in joint decision making in rice farming by four categories of rice farmers

Variable No	Independent variable	'r' value			
		Men in men headed household (n-60)	Women in men headed household (n-60)	Women in defacto household (n-30)	Women in dejuri household (n-30)
1	Age	0.0298	-0.0943	-0.1033	0.3619
2	Caste	-0.0355	0.1729	-0.0779	-0.0014
3	Education	-0.0486	-0.1193	-0.5074	-0.1576
4	Occupation	0.0345	0.0672	-0.1365	-0.2018
5	Area under wetland	-0.2615	-0.1161	0.0674	-0.0367
6	Area under garden land	0.0239	0.1421	-0.0083	-0.1952
7	Annual income	-0.0868	-0.1880	0.0388	-0.2949
8	Farming experience	0.0376	-0.0903	0.0303	0.1840
9	Contact with extension agency	-0.0128	-0.1228	0.0278	0.1704
10	Exposure to mass media	-0.0544	0.1424	0.3768*	-0.1532
11	Cosmopoliteness	-0.0006	-0.0707	0.0536	-0.3148
12	Self confidence	0.0094	0.0490	0.3023	-0.1612
13	Self concept	0.4346**	0.0503	-0.2496	0.2376
14	Scientific orientation	-0.0097	-0.0327	0.1102	0.0272
15	Value orientation	-0.1750	0.1154	-0.2984	0.0016
16	Economic motivation	-0.1203	0.2681	0.1492	0.3005
17	Risk orientation	0.4128**	0.1975	0.2276	0.0561
18	Innovation proneness	-0.0171	-0.0958	-0.0301	-0.1898
19	Knowledge in rice farming	-0.0216	0.0264	0.3973*	-0.1432
20	Extent of adoption	-0.1454	0.0681	0.4090*	-0.0419
21	Attitude towards rice based farming system	0.1395	-0.3541**	-0.4569*	0.2962

* Significant at 5% level
** Significant at 1% level

performance in joint decision making was accepted except risk orientation which showed a positive and significant correlation and self concept which showed a negative and significant correlation with role performance in joint decision making.

In the case of women in men headed household among the independent variables selected only two variable showed a significant relationship with joint decision making. Of these two variable economic variable is found to be positively correlated whereas attitude towards rice based farming system exhibited negative correlation (Fig 9).

It is inferred from the result that majority of the respondents in this group were having high economic motivation. Only if the farmer is economic motive then only he will actively participate in farming. Attitude is individual oriented, though the individual develops a favourable attitude towards rice farming, it is the social value which decides the participation of women in farm decision making. In case of women farmers in men headed household the involvement of women in farming is low. Also almost 90 per cent of the farm decisions were independently taken by the men farmers and the involvement of women in farm related decisions were meager. Hence a negative relationship between attitude and role performance in decision making. The result is in line with the findings of Reddy and Sahay (1973) and Badiger (1979). The null hypothesis was accepted but for two variables economic

Independent variables

X_1 - Age
X_2 - Caste
X_3 - Education
X_4 - Occupation
X_5 - Area under wetland
X_6 - Area under gardenland
X_7 - Annual income
X_8 - Farming experience
X_9 - Contact with extension agency
X_{10} - Exposure to massmedia
X_{11} - Cosmopoliteness
X_{12} - Self confidence
X_{13} - Self concept
X_{14} - Scientific orientation
X_{15} - Value orientation
X_{16} - Economic motivation
X_{17} - Risk orientation
X_{18} - Innovation proneness
X_{19} - Knowledge in rice farming
X_{20} - Extent of adoption
X_{21} - Attitude towards rice based farming system

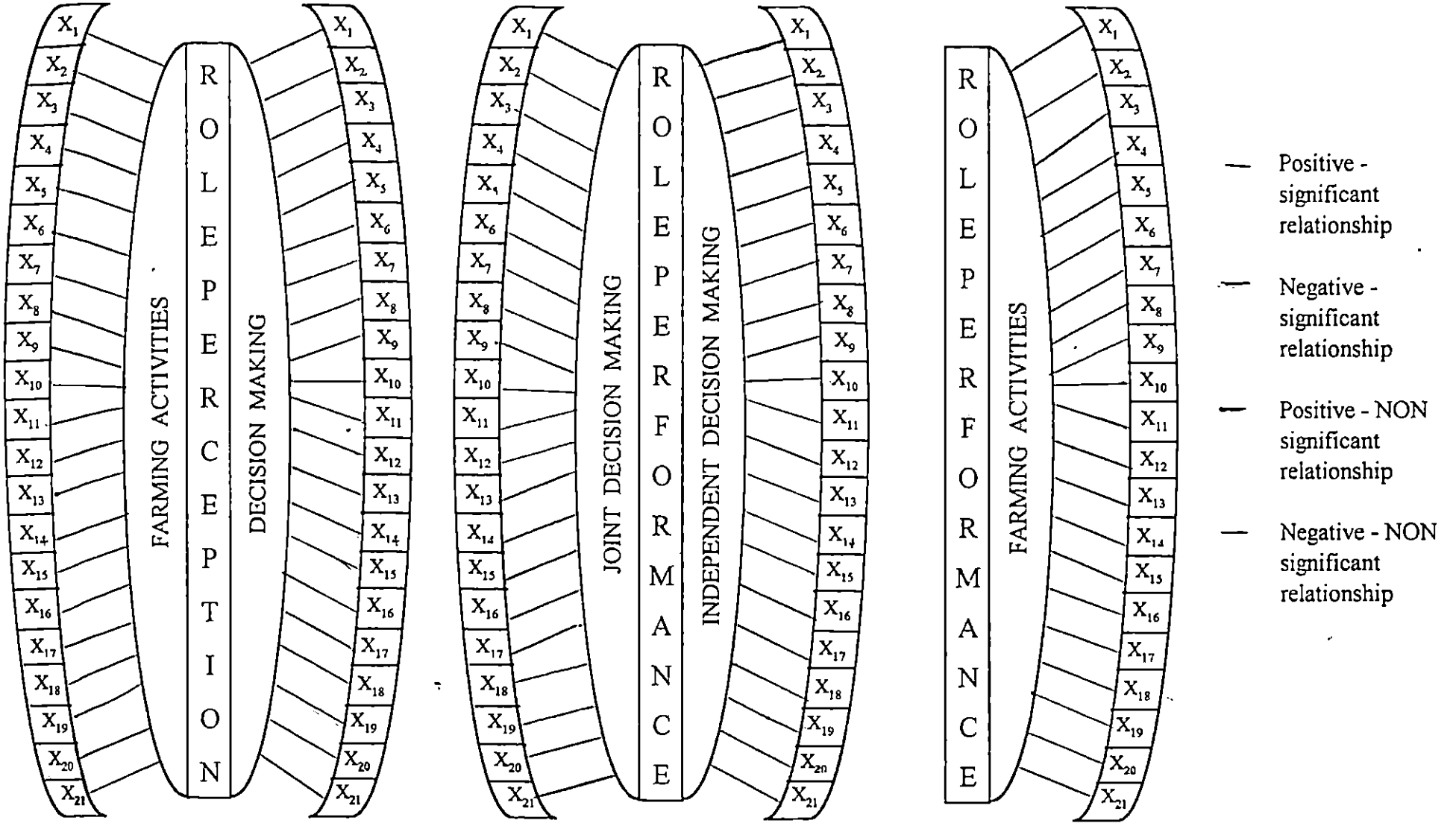


Figure 11: **Correlation between dependent and Independent Variables with regard to women in Dejuri household**

motivation which showed a positive correlation and attitude towards rice based farming system which exhibited a negative relationship with role performance in decision making.

With regard to the women in defacto household only three variables viz., exposure to mass media, level of knowledge and extent of adoption were found to be positively and significantly correlated with joint decision making. Whereas attitude towards rice based farming system was found to be correlated negatively (Fig 10).

Since the men in this household were temporarily absent these women wee burdened with both farm and home activities. So they try to acquire some knowledge about various activities in rice farming by using various mass media. Moreover in Kerala every household subscribe news paper and everybody possess radio. Not only that the literacy rate is also high. So these women read and hear about agricultural news and so they possess high knowledge and their adoption is also high. In Kerala the cost of cultivation is high in rice farming compared to other crops so the profit incurred from rice farming is very low. As a result majority of farmers are skipping from rice farming to other remunerative crops. This might be the reason for the negative relationship between attitude and joint decision making.

This result is in accordance with the findings of Dipali (1979), Padmanabhan (1981), Renukaradhya (1983), Punia *et al.* (1991), Pradeepkumar (1993) and Alex (1994). With a view of the above discussion, the null hypothesis was rejected in case of variables like exposure to mass media, level of knowledge and extent of adoption which exhibited positive correlation and attitude towards rice based farming system which exhibited negative relationship with role performance in joint decision making.

As far as the women in dejuri household is concerned, no independent variable showed a significant correlation with role performance in joint decision making. With respect to women in dejuri household the null hypothesis that there exist no significant relationship between independent variables and role performance in joint decision making was accepted.

4.8.5 Relationship of selected characteristics with role performance in independent decision making by four categories of rice farmers.

A glance at the Table 22 shows that in the case of men in men headed household, among the independent variables, self concept is the only variable which showed positive and highly significant correlation with independent decision making. Further the variable risk orientation showed a positive and significant relationship (Fig 8).

Table 22 Correlation coefficient (r) of independent variables with role performance in independent decision making in rice farming by four categories of rice farmers.

Variable No	Independent variable	'r' value			
		Men in men headed household (n-60)	Women in men headed household (n-60)	Women in defacto household (n-30)	Women in dejuri household (n-30)
1	Age	0.0148	-0.0732	0.2721	-0.4174*
2	Caste	0.0482	0.1204	0.0239	-0.3230
3	Education	0.0663	-0.0428	0.4056*	0.4069*
4	Occupation	-0.0098	0.1206	0.3907*	0.2333
5	Area under wetland	0.1533	0.1198	0.1678	0.0361
6	Area under garden land	-0.1062	-0.0595	0.1237	0.1100
7	Annual income	0.0709	0.3806**	-0.1872	0.1121
8	Farming experience	-0.0295	0.0446	-0.0985	-0.3459
9	Contact with extension agency	-0.0001	-0.0371	0.1174	-0.1191
10	Exposure to mass media	0.0516	0.0324	0.0469	0.3980*
11	Cosmopoliteness	-0.0202	-0.2630*	0.3051	0.1906
12	Self confidence	-0.1383	0.0300	-0.1603	-0.0763
13	Self concept	0.4726**	0.1032	0.2406	-0.2790
14	Scientific orientation	-0.0529	0.0351	0.1934	-0.2925
15	Value orientation	0.0911	0.0049	0.1786	-0.1730
16	Economic motivation	0.0806	0.0452	0.1476	0.3565
17	Risk orientation	-0.3861	0.0550	0.2778	-0.2435
18	Innovation proneness	0.0102	0.0428	-0.0554	-0.0491
19	Knowledge in rice farming	-0.0004	-0.1153	-0.1190	-0.0064
20	Extent of adoption	0.0976	-0.1080	-0.1608	-0.0546
21	Attitude towards rice based farming system	-0.1800	-0.0626	0.3630	-0.2383

* Significant at 5% level
** Significant at 1% level

Being the head of the family any decisions taken with respect to farm and home activities, his decision must be the final one. Since he is actively involved in all the farm activities he has through knowledge about the condition in the field. So he is in the position to take independent decisions in farm activities. This might be the reason for positive correlation of self concept with independent decision making.

At the sametime he will discuss all these decisions with his female counterpart. Because before putting these decisions into action, he must get the support of his wife inorder to avoid risk. Eventhough he possess self concept, he will consult his female counterpart before taking any decision. Since the financial aspects were taken jointly by both male and female in the family. So he is not ready to take risk by putting his decision alone. The null hypothesis was rejected for two variables self concept and risk orientation.

With respect to women in men headed household, annual income showed a positive and highly significant correlation with independent decision making. Another variable which showed a negative but significant correlation was cosmopoliteness (Fig 9).

In this category annual income is high compared to the farmers in other category. In the men headed household all the budgetary

allocation might be done by the women. Since the men are involved in the field and other activities, money management was done by the women. Since money management is done by the women, she has the capacity to take independent decisions with regard to financial aspects. So any decisions with regard to financial aspects was taken by men only after consultation with their wife that might be the reason for the positive correlation between annual income and independent decision making. Women in this household is found to be less cosmopolite because of her poor access to the outside world, hence a negative correlation between cosmopoliteness and independent decision making.

The result is in conformity with the findings of Wilkening and Johnson (1958), Deb *et al.* (1968), Govind (1984) Shanmughavadivu (1992) and Shanthy (1997). The null hypothesis was accepted but for variables namely annual income which showed a positive correlation and cosmopoliteness which exhibited a negative relationship.

A critical view of the Table 22 showed that in the case of women in defacto household only two variable viz., education and occupation was found to have positive and significant correlation with independent decision making (Fig 10).

Because of the absence of male members they are entrusted with the responsibility of farm / home. So they are forced to take

independent decisions. Also majority of the women have undergone primary level of education and they have more access towards mass media as a result of their exposure they had knowledge about the agricultural activities which will help them to take independent decisions.

The result of this study supports the findings of Dean *et al.* (1958), Rexlin (1984), Seema (1986), Sharma *et al.* (1988), Warris *et al* (1990) and Shanmugavadivu (1992). Only with regard to education and occupation the null hypothesis was rejected.

With regard to women in dejuri household two variables namely education and exposure to mass media showed a significant and positive relationship. Whereas age showed a negative correlation with role performance in independent decision making (Fig 11).

Being the head of the household they took almost all the decisions independently. So education and exposure to mass media is very much essential to upgrade their knowledge. Also majority of the respondents belonged to old age and their involvement in farming is less but being the head of household they have to take decisions. So age has no role to play in independent decision making.

The result is in accordance with the findings of Dean *et al.* (1958), Rexlin (1984), Perumal and Uthayakumar (1984), Seema (1986), Sharma *et al.* (1988), Warris *et al.* (1990), Punia *et al.* (1991) and Renukaradhya (1983). Here also null hypothesis was accepted but for variables namely education, exposure to mass media which was positively correlated and age which was negatively correlated.

4.9 **Training needs of rice farmers**

Table 23 revealed that more than 60 per cent of men in men headed farm family opined that they need training in safe use of fungicides and pesticides, handling sprayers and dusters and identification of pest and diseases. More than 40 per cent needed training on farm budgeting, rice post harvest technology, supervision and management of farm enterprise, seed treatment and selection of good variety.

Whereas the women in men headed farm family opined that more than 80 per cent of them need training in identification of pest and diseases, handling sprayers and dusters and safe use of insecticides and fungicides. More than 50 per cent of them stated that they need training in selecting quality seeds, training in post-harvest technology, selection of good variety followed by seed treatment and farm budgeting.

Table 23 Training needs of men and women in men headed household in rice farming

Sl. No	Areas of training need	Men in men headed household (n = 60)								Women in men headed household household (n = 60)							
		Most needed		Needed		Somewhat needed		Not needed		Most needed		Needed		Somewhat needed		Not needed	
		No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
1	Selection of good variety	19	31.67	7	11.67	8	13.33	26	43.33	37	61.67	3	5.00	1	1.67	19	31.67
2	Seed treatment	21	35.00	7	11.67	7	11.67	25	41.67	22	36.67	7	11.67	3	5.00	28	46.67
3	Preparation of nursery bed	10	16.67	7	11.67	10	16.67	33	55.00	8	13.33	10	16.67	4	6.67	38	63.33
4	Selection of quality seeds	8	13.33	8	13.33	12	20.00	32	53.33	30	50.00	6	10.00	2	3.33	22	36.67
5	Land preparation	5	8.33	5	8.33	5	8.33	45	75.00	9	15.00	13	21.67	7	11.67	31	51.67
6	Depth of planting to be adopted	6	10.00	9	15.00	6	10.00	39	65.00	6	10.00	13	21.67	7	11.67	34	56.67
7	Correct spacing to be adopted	3	5.00	5	8.33	4	6.67	48	80.00	9	15.00	7	11.67	9	15.00	35	58.33
8	Identification of pest and diseases	25	41.67	15	25.00	6	10.00	14	23.33	44	73.33	7	11.67	2	3.33	7	11.67
9	Handling the sprayers and dusters	19	31.67	27	45.00	8	13.33	6	10.00	45	75.00	9	15.00	1	1.67	5	8.33
10	Correct stage of harvesting crop	6	10.00	14	23.33	15	25.00	25	41.67	10	16.67	5	8.33	23	38.33	22	36.67
11	Safe use of insecticide and fungicides	16	26.67	22	36.67	20	33.33	2	3.33	38	63.33	13	21.67	6	10.00	3	5.00
12	Supervision and management of farm enterprise	11	18.33	13	21.67	12	20.00	24	40.00	8	13.33	2	3.33	7	11.67	43	71.67
13	Farm budgeting	8	13.33	10	16.67	9	15.00	33	55.00	17	28.33	4	6.67	4	6.67	35	58.33
14	Training in rice post harvest technology	11	18.33	13	21.67	10	16.67	26	43.33	29	48.33	3	5.00	2	3.33	26	43.33

Table 24 shows that in case of women in defacto household also more than 75 per cent of them stated that they need training in handling of sprayers and dusters, identification of pest and diseases and safe use of insecticides and fungicides. More than 50 per cent of them revealed that they should be given training in areas like seed treatment, selection of quality seeds and only less than 40 per cent suggested that they need training in supervision and management of farm enterprise, stage of harvesting the crop, land preparation and preparation of nursery bed.

In the case of women in dejuri household more than 75 per cent needs training on identification of pest and diseases, handling of sprayers and dusters, safe use of insecticides and fungicides.

More than 50 per cent of them needed training on areas like seed treatment, supervision and management of farm enterprise and more than 35 per cent required training on selection of good variety and preparation of nursery bed.

The findings of the study is in concurrence with that reported by Gopal (1974), Thamaraiselvi (1989), Subashini (1990), Camillus (1991), Prasad and Mrutyunjayan (1992) and Nand *et al.* (1994).

Table 24 Training needs of women in defacto and dejuri household in rice fariming

Sl. No.	Areas of training	Women in defacto household (n = 30)								Women in dejuri household (n = 30)							
		Most needed		Needed		Somewhat needed		Not needed		Most needed		Needed		Somewhat needed		Not needed	
		No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
1	Selection of good variety	12	40.00	1	3.33	4	13.33	13	43.33	7	23.33	4	13.33	1	3.33	18	60.00
2	Seed treatment	13	43.33	4	13.33	1	3.33	12	40.00	12	40.00	7	23.33	2	6.67	9	30.00
3	Preparation of nursery bed	8	26.67	4	13.33	6	20.00	12	40.00	7	23.33	4	13.33	6	20.00	13	43.33
4	Selection of quality seeds	12	40.00	5	16.67	1	3.33	11	36.67	7	23.33	2	6.67	3	10.00	18	60.00
5	Land preparation	6	20.00	5	16.67	1	3.33	18	60.00	4	13.33	3	10.00	3	10.00	20	66.67
6	Depth of planting to be adopted	4	13.33	5	16.67	2	6.67	19	63.33	4	13.33	3	10.00	1	3.33	22	73.33
7	Correct spacing to be adopted	4	13.33	5	16.67	1	3.33	20	66.67	5	16.67	4	13.33	1	3.33	20	66.67
8	Identification of pest and diseases	16	53.33	7	23.33	4	13.33	3	10.00	21	70.00	5	16.67	2	6.67	2	10.00
9	Handling the sprayers and dusters	11	36.67	14	46.67	4	13.33	1	3.33	17	56.67	7	23.33	3	10.00	3	10.00
10	Correct stage of harvesting crop	10	33.33	2	6.67	8	26.67	10	33.33	12	40.00	4	13.33	10	33.33	4	13.33
11	Safe use of insecticide and fungicides	14	46.67	9	30.00	4	13.33	3	10.00	17	56.67	7	23.33	2	6.67	4	13.33
12	Supervision and management of farm enterprise	8	26.67	4	13.33	7	23.33	11	36.67	6	20.00	10	33.33	4	13.33	10	33.33
13	Farm budgeting	4	13.33	2	6.67	2	6.67	22	73.33	2	6.67	5	16.67	4	13.33	19	63.33
14	Training in rice post harvest technology	5	16.67	2	6.67	2	6.67	21	70.00	3	10.00	1	3.33	5	16.67	21	70.00

4.10 Constraints experienced by rice farmers

A cursory perusal of the Table 25 revealed that cent per cent of men in men headed household, women in defacto household and 90 per cent of women in men headed and dejuri household opined that high cost of cultivation as the main problem followed by high cost and scarcity of labourers during peak season.

About 81.67 per cent of men and 85 per cent of women respondents in men headed household, 76.67 per cent in defacto and 66 per cent of respondents in dejuri household stated that high cost of plant protection chemical as their main constraint.

Lack of irrigation was expressed as a problem by 75 per cent of respondents in all the four categories.

Fifty per cent of women in men headed household, defacto household and 75 per cent of women in dejuri household expressed lack of awareness in use of chemicals as their main problem and lack of technical guidance was expressed as a problem by 50 per cent of all the four categories of farmers.

Kerala is a state where the wage rate is very high, which in turn increases the cost of cultivation of rice. This is because majority of the

Table 25 Constraints experienced by four categories of rice farmers with regard to rice farming

Sl. No	Problems	Men in men headed household (n-60)		Women in men headed household (n-60)		Women in defacto household (n-30)		Women in dejuri household (n-30)	
		No	%	No	%	No	%	No	%
1	Shortage of quality seeds	19	31.67	38	63.33	18	60.00	13	41.33
2	Lack of irrigation facilities	42	70.00	45	75.00	24	80.00	26	86.67
3	High cost of cultivation	60	100.00	57	95.00	30	100.00	28	93.33
4	High cost of labourers and scarcity of labourers during peak season	58	96.67	59	98.33	29	96.67	29	96.67
5	High cost of plant protection chemicals	49	81.67	51	85.00	23	76.67	20	66.67
6	High incidence of pest and diseases	29	48.33	26	43.33	12	40.00	11	36.67
7	Lack of expertise in handling agricultural implements	16	53.33	20	33..33	10	33.33	11	36.67
8	Lack of technical guidance	31	51.67	30	50.00	17	56.67	16	53.33
9	Inadequate and untimely supply of inputs	19	31.67	21	35.00	10	33.33	12	40.00
10	Lack of awareness of the use of chemicals to control pest and disease	25	41.67	30	50.00	15	50.00	21	70.00

materials for day to day life has to be purchased from the wages earned by the labourers. Also the wage labourers send their children to school and further for higher education with the motive of getting good job. As the educational status increases the children's of labourers are not ready to become agricultural labourers. That might be the reason for the scarcity of labourers.

Another cause of high cost of cultivation is due to the high cost of plant protection chemicals. Rice is a crop which requires lot of inputs like manures, fertilizers and plant protection chemicals, which a moderate farmer cannot afford. Lack of awareness regarding the use of correct dosage of plant protection chemical is due to the lack of extension service among the farmers.

Lack of irrigation facilities is another major problem expressed by more than 75 per cent of the farmers. Eventhough there is enough water resources they are not properly utilised, this is due to the lack of understanding between farmers and officials so the farmers are not getting water at the correct time and correct quantity.

Lack of technical guidance among farmers is due to lack of extension service among farmers especially women farmers. In Kerala eventhough majority of the agricultural extension personnels are women they have not given much importance to women farmers. The extension

system of our country itself is male oriented. High incidence of pest and disease is also reported by 40 per cent of respondents. Since in majority of rice areas high yielding varieties are grown, these varieties are more prone to pest and diseases attack. In Kerala majority of farmers are having fragmented holding, so the stage of crop will be different in the same ayacut area. This can be tackled only if the farmer sow and transplant the crop at the sametime on a group farming basis. This will also reduce the cost of cultivation.

The findings of this study is in conformity with the studies reported by Waghmare and Pandit (1982), Prakash (1989), Tantray and Nanda (1991) and Shilaja and Jayaramiah (1992).

Independent variables

X_1 - Age
X_2 - Caste
X_3 - Education
X_4 - Occupation
X_5 - Area under wet land
X_6 - Area under garden land
X_7 - Annual income
X_8 - Farming experience
X_9 - Contact with extension agency
X_{10} - Exposure to mass media
X_{11} - Cosmopoliteness
X_{12} - Self confidence
X_{13} - Scientific orientation
X_{15} - Value orientation
X_{16} - Economic motivation
X_{17} - Risk orientation
X_{18} - Innovation proneness
X_{19} - Knowledge in rice farming
X_{20} - Extent of adoption
X_{21} - Attitude towards rice based farming system

Dependent variables

Y_1 - Role perception in rice farming activities
Y_2 - Role perception in decision making
Y_3 - Role performance in rice farming activities
Y_4 - Role performance in joint decision making
Y_5 - Role performance in independent decision making

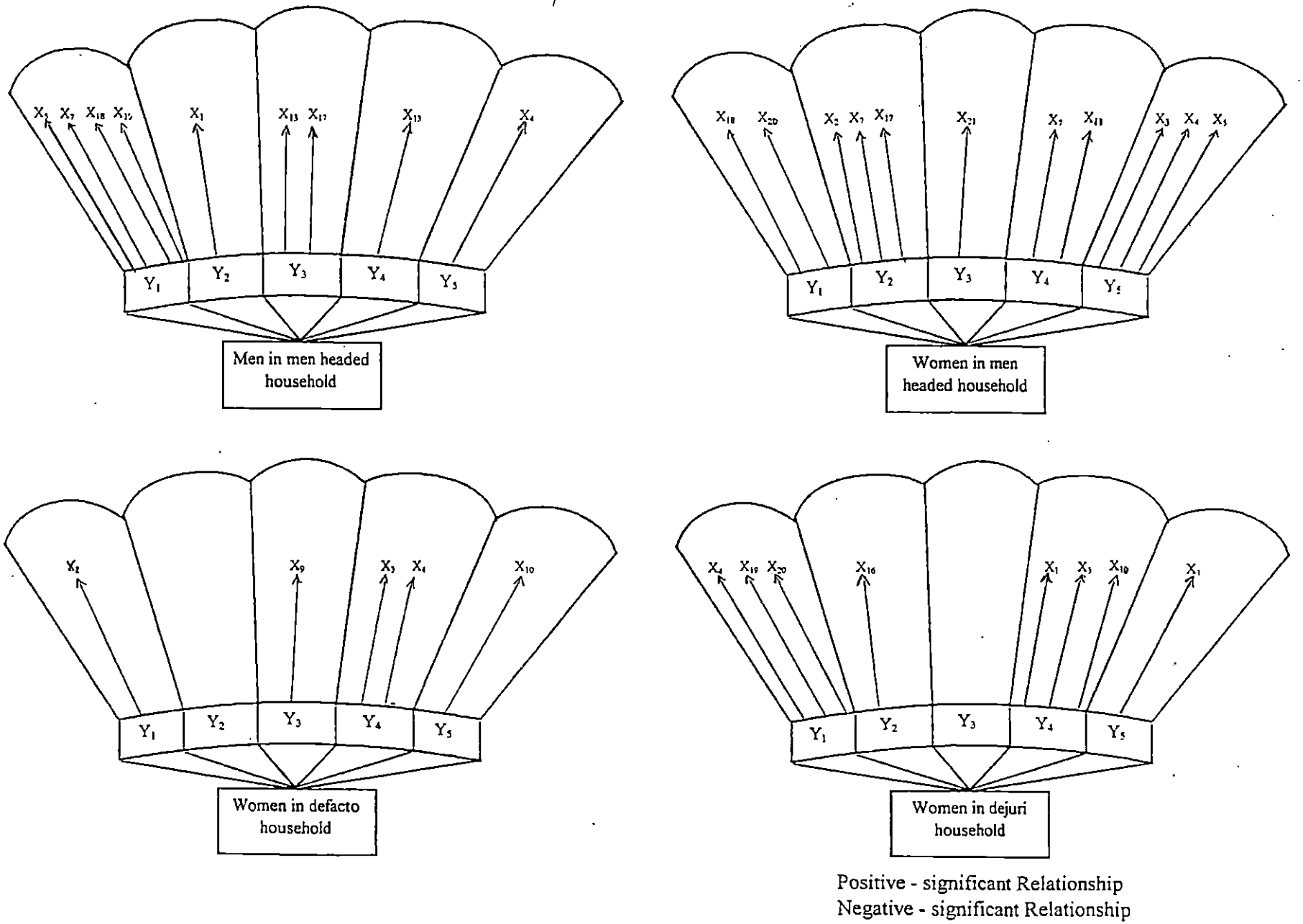


Figure 12 : **Empirical model of the study**

SUMMARY

5. SUMMARY

India is a vast country where agriculture and allied activities are the main source of livelihood for majority of the population. Indian women are the backbone of Indian farming playing their varied roles in the different part of the country.

However the official status do not reveal fully the actual status and role of women in agriculture. Such data are necessary for economic analysis and policy decisions in agriculture planning. the success of any effort in the form of agricultural production or to facilitate effective transfer of technology including women welfare measures for upgrading their skill and knowledge in relevant areas of agriculture would largely depend on the understanding of inter and intra regional differences in the level of participation of men and women engaged in different sectors and operations belonging to the broad category of agriculture. It was precisely for this reason that the present study was taken up mainly to assess and compare the level of participation of women vis-a-vis men in rice farming.

The specific objectives of the study were

1. To identify the role perception and role performance of rice farmers in rice farming activities.

2. To identify the role perception and role performance of rice farmers in decision making.

3. To analyse the characteristics of rice farmers in relation to their role perception and role performance.

4. To assess the training need and constraints experienced by rice farmers.

The study was conducted in Thiruvananthapuram district of Kerala state. Four categories of rice farmers were contacted from three panchayats belonging to three taluks namely Chirayankil, Thiruvananthapuram and Neyyattinkara. First two category of rice farmers consists of both men and women in men headed household, third category is the women farmer in defacto household where the men is temporarily absent and fourth is the women farmer in dejuri household where the men is permanently absent. From each panchayats 60 farmers were contacted of this 40 consists of both men and women in men headed household, 10 women from defacto household and 10 women farmers from dejuri household. So finally 180 farmers were identified for the study purpose.

The various roles and decision making areas which is a rice farmer can perform in rice farming were identified on the basis of review of

literature, discussion with experts and farmers. To measure the role performance of farmers in rice production the identified roles were administered to the farmers and they were asked to indicate their responses in a four point continuum. Roles of farmers in joint and independent decision making was measured by recording their responses in a three point continuum. The perception of the farmers with regard to the rice farming activities and decision making was measured with respect to the importance ascribed to the role in a three point continuum.

The characteristics of rice farmer in relation to their role perception and role performance were identified based on review of literature and opinion of judges. Regarding the measurement of the identified characteristics of rice farmers, the selected variables were measured either using adopted scales or schedules developed for the study. Attitude towards rice based farming system was quantified by a procedure devised by the researcher, following the method of Summated ratings described by Likert (1932).

The data were collected by personal interview. Different statistical tools like percentage analysis, simple correlation analysis, analysis of variance and Kruskal-wallis analysis were used to analyse the data.

The salient findings of the study are summarised below

1. Thirty eight roles related to rice farming were identified and administered to the rice farmers. sixty to eighty percent of men farmers perceived roles like ploughing the main field, levelling, puddling, trimming and plastering the field bunds, spreading farm yard manure and green manure in the field, irrigating the main field, forming drainage channel, application of manures and fertilizers and marketing the produce as 'very important'.

2. More than fifty percent of the women in men headed household perceived their role in pulling out seedlings from nursery bed, weeding, winnowing, dehusking, storage of dried seeds, supervising the labourers, maintenance of cattle shed, management of milch animal, taking care of sick animal, transplanting, scaring birds, harvesting, processing of seeds, feeding the animals, preparing processed food from milk and marketing of milk and milk products as 'important'.

3. Fifty percent of the women in defacto household perceived roles like pulling out seedlings from nursery bed, weeding, preparation of nursery bed, winnowing, drying, dehusking, transplanting, processing of seeds, scaring birds, storage of dried seeds, preparing and carrying food for labourers, management of milch animal, maintenance of

cattle shed, milking the animals, taking care of sick animals and marketing of milk and milk products as 'important'.

4. Above fifty percent of women in dejuri household perceived that their participation should be in areas such as pulling out seedlings from nursery bed, drying, supervising the labourers, storage of dried seeds, winnowing, dehusking, scaring birds, feeding the animals, preparing processed food from milk, marketing of milk products and taking care of sick animals.

5. More than eighty percent of men farmers perceived decision making areas like seed rate to be followed, time of pulling out seedling from nursery bed, type of ploughing to be done, interval of irrigation to be given, time of weeding, number of labourers required for weeding and harvesting, method of threshing and quantity of grains to be stored as 'important'.

6. Eighty percent of women in men headed household perceived that their participation in taking decisions in area like choice of the crop, deciding the expenditure of farm and home, type of breed to be grown and number of animals to be maintained as 'very important'.

7. Above fifty percent of women in defacto household perceived it is their duty to take decisions in areas like choice of the crop and

variety, selecting quality seeds, seed rate to be followed, quantity of manures and fertilizers to be applied, interval of irrigation to be given, time of weeding, number of labourers required for land preparation and harvesting, method of threshing, quantity of grains to be stored and sold, method of processing the seed, marketing the produce and deciding the expenditure of farm and home.

8. Fifty percent of the women in dejuri household perceived areas like choice of crop and variety, time of pulling our seedling from nursery bed, type of ploughing to be done, time of applying manures and fertilizers, type of fungicides and pesticides to be used, number of labourers required for transplanting, weeding, method of threshing and processing the seed, marketing the produce, deciding the expenditures of farm and home, number of animals to be maintained, care and management of animals, wages to be paid to labourers, type of feed to be given, marketing the milk and fixing the price as 'very important'.

9. More than fifty percent of the men farmers 'most often' performed roles like ploughing the main field, puddling, levelling, application of manures and fertilizers, irrigating the main field, maintaining water depth in nursery, spreading the farm yard manure, forming drainage channels, supervising the labourers, marketing of produce,

maintenance of milch animal and marketing of milk and milk products.

10. Majority of women in men headed household performed roles such as winnowing, drying, dehusking, storage of dried seeds, management of milch and draught animals, marketing of milk and milk products, weeding, scaring birds, preparing and carrying food for labourers and supervising the labourers.

11. Eighty percent of the women in dejuri household were 'often' involved in the post harvest operations, management of milch animals, weeding and scaring birds.

12. More than forty percent of the women in dejuri household performed roles like pulling out seedling from nursery bed, scaring birds, weeding, supervising the labourers, management of milch animal, winnowing and storage of dried seeds.

13. Above eighty percent of the men farmers took joint decisions in areas like deciding the expenditure of farm and home, type and number of animal breed to be grown and marketing of milk and fixing the price. Almost all the decisions related to rice farming were taken independently by the men farmers.

14. Fifty percent of women in men headed household took joint decision in areas like choice of crop, deciding the expenditure of farm and home, type and number of animal of breed to be grown and wages to be paid to labourers. Only thirty percent of them took independent decision in areas like care and management of animals, marketing of milk and fixing the price of milk products.

15. Sixty to seventy percent of the women in defacto took joint decision in majority of areas in rice farming. Above fifty percent of them took joint decision in areas like number of labourers required for land preparation, weeding and harvesting, time of weeding and marketing of milk and milk products.

16. Above fifty percent of the women in dejuri household took decisions by consulting their family members in areas like deciding the expenditure of farm and home, marketing of produce, wages to be paid to labourers and type of animals to be maintained. Rest decisions making areas were taken independently by these women.

17. Categorywise comparison of rice farmers based on selected characteristics showed that significant difference exist between the groups with respect of age, caste, education, occupation, area under wetland, area under garden land, annual income, farming experience, contact with extension agency, exposure to mass media,

cosmopoliteness, self confidence, economic motivation, knowledge in rice farming and extent of adoption.

18. Regarding the personal characteristics of rice farmers. Majority of the respondents except women in dejuri household belonged to middle age, whereas women in dejuri household belonged to old age.

More than forty percent of respondents in all categories were having middle school level, whereas dejuri household women was able to read and write only. Sixty percent of the respondents in all four categories had agriculture as their main occupation. Almost all the rice farmers were having wetland less than 100 cents and fifty percent of them had garden land below forty cents. Above 40 percent of the respondents in men headed and defacto household had annual income less than 20,000 and women in dejuri were having annual income of 11,000. Above fifty percent of men farmers and women in dejuri household were having twenty years of farming experience and more than forty five percent of women in men headed and defacto household were having a farming experience less than fifteen years.

With respect to Extension communication variable above forty percent of the respondents were having frequent contact with extension agencies. More than fifty percent of the respondents were having high mass media contact and were having high cosmopoliteness.

Regarding psychological characteristics of rice farmers above forty percent of the farmers were having high self confidence self concept, scientific orientation, economic motivation, risk orientation, innovation proneness, knowledge in rice farming, extent of adoption and attitude towards rice based farming system, whereas value orientation of the men in men headed and women in dejuri and defacto household were found to be lower whereas women in men headed household was found to have high value orientation.

19. Categorywise comparison of rice farmers based on role perception and performance in rice farming activities and decision making showed that there exist no significant difference between groups with respect of role perception in rice farming activities, whereas there exist a significant difference between the four categories of rice farmers with respect of role perception in decision making and men were found to be superior in this. A significant difference was also observed with regard to role performance in activities and women in defacto household were found to be superior. With respect to joint and independent decision making there exist a significant difference and it was found that joint decision making was found to be higher in defacto household and maximum independent decision was taken by men farmer in men headed household.

20. Significant and negative correlation was found between area under wetland, annual income, innovation proneness and knowledge in rice farming and role perception in rice farming activities with respect to men in men headed household. There exist a significant and positive correlation between extent of adoption and innovation proneness and role perception in decision making, with regard to women in men headed household is concerned only caste showed a significant and negative correlation. Occupation, level of knowledge and extent of adoption showed a significant and negative correlation with respect to women in dejuri household.

21. In the case of men in the men headed household there exists a significant and positive correlation between age and role perception in decision making. Also contact with extension agency showed a negative relationship with role perception. Variables such as caste annual income and risk orientation showed a positive and significant correlation with role perception with regard to women in men headed household. As far as women in defacto household is concerned cosmopoliteness, area under wetland and exposure to mass media showed a positive and significant correlation. In the case of women in dejuri household variable economic motivation showed a positive and significant relationship.

22. There exist significant correlation between occupation and role performance in farming activities with respect to men in men headed household. In the case of women in men headed household area under wetland showed a significant and positive relationship whereas occupation and education showed a negative relationship. Exposure to mass media showed a significant and positive correlation with role performance while caste exhibited a significant, but negative relationship in the case of women in defacto household. With regard to women in dejuri household only one variable age showed a significant and negative correlation.

23. Significant and positive relationship was found between risk orientation and role performance in joint decision making. Another variable which showed a negative correlation was self concept in the case of men in men headed household. There exist a significant and positive relationship between economic motivation and role performance, whereas attitude towards rice based farming system exhibited negative correlation with respect to women in men headed household. In the case of women in defacto household exposure to mass media, level of knowledge and extent of adoption exhibited positive and significant correlation with joint decision making, whereas attitude towards rice based farming system was found to be correlated negatively.

24. In the case of men in men headed household self concept showed a significant and positive correlation with independent decision making further risk orientation showed a positive and significant relationship. With respect to women in men headed household annual income showed a positive correlation and cosmopoliteness showed a negative correlation with independent decision making. Positive and significant correlation was found between education and occupation and independent decision making in the case of women in defacto household. In the case of women in dejuri household education and mass media showed a significant and positive relationship whereas age showed a negative correlation with respect to independent decision making.

25. Training needs of rice farmers was also assessed and it was found that the men farmers needed training in safe use of fungicides and pesticides, handling sprayers and dusters and identification of pest and diseases. Seventy percent of women in men headed household, defacto and dejuri household needed training in identification of pest and diseases, handling sprayers and dusters and safe use of insecticides and pesticides.

26. High cost of cultivation was stated as the main problem by more than eighty per cent of the respondents in the four category. More than fifty per cent of the respondents also stated high cost of plant

protection chemical and lack of irrigation as their main constraint. Fifty per cent of the women respondents expressed lack of awareness in use of chemicals as their main problem. Whereas fifty per cent of the four categories of farmers expressed lack of technical guidance as their main constraint.

Implications of the study

1. The study brings to focus the gender based role perception and role performance of both men and women in rice farming activities and decision making. This will help to identify the extent of participation of both men and women in rice farming, which will help the planners of agricultural development programme for developing appropriate welfare schemes for the rice farmers and for developing appropriate technologies for women and to promote increased involvement of women in farming.

2. The relationships established in the study between the selected independent variables and the role perception and performance would serve as a guideline for extension personnel for manipulating the characteristics of farm men and women to derive better productivity in agricultural development activities.

3. The training needs and constraints identified emphasize the areas and need for organizing effective training programmes as well as other

extension activities for reaching the farmers especially women farmers.

Suggestions for future research

1. Generalization made based on the findings of the study may have only limited application. A comprehensive research project of wide depth and coverage stretching all over the state need to be undertaken.

2. The extent of involvement of the women has to be identified with respect to other crops also. And serious attempt have to be made to identify the training needs of farm women to develop and improve their technical skills and income generating capabilities.

REFERENCES

Bhagat, R. 1980. Family life of working rural women - A few cases. *Ind. J. Extn. Educ.* 16 : 67

Bhamrah, P. S. 1966. Relative influence of family members of farmers in decision making of farm and home affairs. M.Sc (Ag.) thesis, P.A.U., Ludhiana.

Bhattacharya, B. and Rani, J. G. 1992. Gender issues in national development planning : A programme report. 24-26 March, National Institute of Rural Development, Hyderabad, India

Bhople, R. S. and Patki, A. 1992. Correlates of role performance and training needs of farm women labour. *Journal of Rural Development.* 11 : 49-58

Bhuyan, B. and Tripathy, S. K. 1988. Role of women in agriculture. *Journal of Rural Development.* 7 : 445-450

Boniface, B. 1996. Agricultural information source utilisation pattern of Neo-literate farmers in rural areas. M.Sc (Ag.) thesis, K. A. U., Thrissur

Camillus, S. L. 1991. Training needs of chilli growers. M.Sc (Ag) thesis, A. C & R. I., T.N.A.U., Madurai.

Census of India 1981. Series 10 (Par II B) Government of India, New Delhi.

Chakravarthy, K. 1981. Indigenous farm practice their influence in adoption. M.Sc (Ag.) thesis, T. N. A. U., Coimbatore.

Chakravarthy, M. 1995. Towards gender equality. *Yojana* 4 : 29-31

Chaney, E. 1981. Women in development world. *Agricultural Economics and Rural Sociology Abstract.*23 : 257.

Chattopadhyay, S. N. 1963. A study of some psychological correlates of adoption of innovations in farming. Ph.D. thesis, Division of Agricultural Extension, Indian Agricultural Research Institute, New Delhi

Crow, L. D. and Crow, A. 1956. *Understanding our Behaviour.* Alfred A. Konpf, New York.

Dak, T. N., Sharma, M. L. and Jain, R. 1986. Social and institutional framework of femail participation in agriculture. *Ind. J. of social work. 47 : 285 - 329.*

Das, K. K. and Sarkar, R. D. 1970. Economic motivation and adoption of farming practices. *Indian. J. Extn. Edn.* **47** : 285

Davis, K. 1949. *Human Society.* The Macmillan Co., New York

Deacon, F. R. and Firebaugh, M. F. 1981. *Family Resources Management* -Principles and Applications

Dean, A., Herbert, A. A. and Paul, M.C. 1958. Some factors related to rationality in decision making among farm operations. *Rural Sociology. 23 : 121 - 135.*

Deb, P. C., Sharma, M. L. and Nirbhail, S. 1968. Rationality in decision making in the adoption of improved practices. *Journal of Research.* **5** : 125-128

Devadas, R. D. 1975. Role of women in modern agriculture. *Indian Farming* 25 : *15*

Devar, R. S. 1969. *Human side of management.* Progressive corporation, Bombay

Devi, S. P. 1994. Differential preference of work by Agricultural labourers and their employment and wage pattern in Thiruvananthapuram district. M.Sc. (Ag.) thesis, K.A.U., Thrissur.

Dipali, M. N. 1979. A study on the knowledge and participation of rural women in agricultural operations with respect to paddy crop and their value orientation in Dharwad district. M.Sc (Ag.) thesis, U. A. S., Bangalore.

Dubey, V. K., Singh, S. B. and Khera, J. K. 1982. Role of rural women in decision making with respect to animal husbandry. *Ind. J. Home Science* **14** (2) : 18-20

Edwards, A. L. 1957. *Techniques in attitude scale construction.* Appleton Century Crofts, Inc., New York

Fathima, P. K. 1993. Welfare schemes for agricultural labourers - A multidimensional analysis. M.Sc (Ag.) thesis, K. A. U., Thrissur

Flanagon, J. C. 1954. The critical incident technique. *Psychological Bulletin* **4** : 327-353

Fliegal, F. C. 1956. A multiple correlation analysis of factors associated with adoption of farm practices. *Rural Sociology* **21** : 205-214

Gautum, N. and Meenakshi. 1992. Women participation in farming of HimachalPradesh. *Kurukshetra* **40** : 17-19

Giriappa, S. 1988. Decision roles by women in different rural and semiurban activities. *Journal of Rural Development* 7 : 433-443

Gopal, R. V. 1974. A study on the training needs of trainers in Coimbatore district. M.Sc. (Ag.) thesis, T.N.A.U., Coimbatore.

Govind, S. 1984. Participation of women in farm and home activities. M.Sc. (Ag.) thesis, T.N.A.U., Coimbatore.

Gowda, B. L. R. 1983. A study on the rate of adoption and innovativeness of farmers in adopting INDAF - 8 Ragi and MR - 301 paddy varieties. M.Sc. (Ag.) thesis in Agric. Ext., Univ. of Agric. Sci., Bangalore

Gurusamy, S. 1987. Role of women in decision making process of dry land farming. M.Sc. (Ag.) thesis, T. N. A. U., Madurai

Habal, E. L. 1994. A study of attitudes of agricultural rural youth towards agricultural innovations in Nekla-El-Enab village district of Italy. *Alexandria Journal of Agricultural Research* **40** : 95-114

Hasan, Q. 1972. A study of relationship between dogmatism, social attitudes and certain personality characteristics. Ph.D. thesis, Aligarh Muslim University

Hiranad and Kumar, K. 1980. Role of farm women of dairy farming tract in decision making. *Indian Co-operative Review* **17** : 105-106

Hodge, B.J. and Johnson, H. J. 1970. *Management and organisational behaviour - A multidimensional approach.* John Wiley and Sons Inc., New York

Hussain, S. A. 1994. Profile analysis of coconut climbers in Thiruvananthapuram district. M.Sc.(Ag.) thesis, K.A.U., Thrissur

Jaiswal, N. K. and Dave, A. K. 1972. Measurement of progressiveness in farming. In Sinha, P. R. R. (Ed.), *Studies in Extension Education*. N. I. C. D., Hyderabad. 115-127

Jayakrishnan, S. 1984. Adoption of low cost technology among paddy growers. M.Sc. (Ag.) thesis, T.N.A.U., Coimbatore

Jegannathan, M. 1984. Profile of rural women in India. *Kurukshetra*. 33 : 38

Jegannathan, M. N. 1988. A study on the adoption of neem coated urea in paddy. M.Sc.(Ag.) thesis, T.N.A.U., Coimbatore

Jeyaraman, M.N. 1988. A study on the adoption of neem coated urea in paddy. M.Sc. (Ag.) thesis, T.N.A.U. , Coimbatore

Jnanadevan, R. 1993. An analysis of selected development programmes for promoting coconut production in Kerala. K.A.U., Thrissur

Joseph, J. 1983. A study on the factors related to the communication effectiveness of village level extension personel. M.Sc.(Ag.) thesis, K.A.U., Thrissur

Kalavathi, S. 1989. Job satisfaction of agricultural graduates engaged in selected avenues of employment in Alleppey district. M.Sc. (Ag.) thesis, K.A.U., Thrissur

Kalpana, R. 1983. Rural women in Rajastan. *Indian Journal of Agric. Econ*. **38** : 16-31

Kamarudeen, M. 1981. A Study on the impact of national demonstration programme on paddy cultivation in Thrissur district. M.Sc.(Ag.) thesis, K.A.U., Thrissur

Kanwar, V.K. and Koranne, K.D. 1989. Position paper on hill farm women in central Himalayas: *International conference on appropriate agriculture technologies for farm women*. Future research strategy and linkage will development system, Abstracts. 1.C.A.R., New Delhi

Kareem, A. 1984. Communication role and behaviour of contact farmers under training and visit system in Kerala. M.Sc.(Ag.) thesis, K.A.U., Thrissur

Kaur, S., Oberoi, K., Aujla, P., Dyal, A. and Rani , U. 1988. Role of rural women and children of different socio- economic status in decision making. *Journal of research*. P.A.U., **25** : 655-663

Khare, A. 1976. *Innovation Success and Creative thinking.* Babulu Books company, Bangalore

Kharwara, P.C., Manchada, A., Kishtwaria, J. and Kanwar, P., 1991. Comparative adoption of improved technology by female and male headed scheduled caste families. *Journal of Rural Development.* **10** : 343-351

Kolsa, B.J. 1970. *Introduction to behavioural Science for business.* Wiley Eastern Pvt. Ltd., New Delhi-152

Kunchu, v. 1989. Constraints in the utilization of developmental schemes by the cardamom growers of Kerala. M.Sc. (Ag.) thesis, K.A.U., Thrissur.

Kuppuswamy, B. 1984. *An Introduction to social psychology.* Asia publishing house, Bombay

Likert, R. 1932. *A Technique for the Measurement of Attitudes.* Arch. Psychol. No. 140.

Lundberg, G.A., and Sehrag, C.C., Larsen and Otto, N. 1958. *Sociology.* Harper and Brothers, New York

Luthans, F. 1983. *Organisational Behaviour.* Mc. Graw Hill International Book Company, New Delhi.

Manoharan, M.P., 1979. A study on the role of leadership in agricultural development in rural areas in Kerala. M.Sc. (Ag.) thesis, K.A.U., Thrissur

Manjula, N., Siddaramaiah, B.S. and Lalith Achouth. 1994. Factors contributing to the adoption level of trained and untrained farm women - An application of principal component analysis. *Journal of Rural Development.* **13** : 107-114.

Marsh, C. O. and Coleman, A. C. 1954. The relation of farmers characteristics to the adoption of recommended farm practices. *Rural Sociology* **20** : 286-296

Mathew, J. 1980. A study on the role of youth in the agricultural development in rural areas. M.Sc. (Ag.) thesis, K.A.U., Thrissur.

Mc Auley, J.G. 1976. *Essentials of personal and public communication.* Wordsworth Publishing Company, Inc., Belmont, California

Mc Gregor, D. 1960. *The Human Side of Enterprise.* Mc Graw Hill, New York

Menon, A. K. 1994. Communication behaviour of women headed farm families of Neyyattinkara taluk. M.Sc. (Ag.) thesis, K. A. U., Thrissur

Menon, A.G.G. and Bhaskaran, C. 1988. In Kerala the coconut technology alters tradition attitudes. *Indian Farming.* 36 : 45 - 47.

Mishra, B. P. and Tripathy, A. 1991. The extent of exposure of farm women to different sources of information and the constraints regarding low and non utilization of the sources. *Orissa Journal of Agricultural Research* 4 : 221-223

*Mitchell, B. 1978. An analysis of the perception of the role of subordinate and superordinate with respect to authority, responsibility and delegation in community schools of flint at the attendance centre levels. Ph. D. thesis, Michigan State University, Michigan

Moulik, T. K. and Rao, C. S. S. 1965. Self rating scale for farmer. In : Singh, K. N., Singh, S. N. and Lokhande, M. R. (Eds.) *Measurement in Extension Research,* Division of Agric. Extn., Indian Agric. Res. Inst., New Delhi

Nand, H. Chandra, S. and Kaur, A.P. 1994. Training needs of farm women in potato. *Journal of the I Pa.* 21 : 133-137

Nandakumar, P.P. 1988. Impact of I.T.D.C. of yerava tribal community in Virajpet taluk of Kodagu district, Karnataka. M.Sc.(Ag.) thesis, U.A.S., Bangalore

Nandapurkar, G.G. 1982. *Small Farmers.* A study on their entrepreneurial behaviour. Metropolitan book co., (Pvt.)Ltd., New Delhi

Nanjayan, K. 1984. Rationality in decision making by small farmers. Ph.D. thesis, Centre for Agricultural and rural development studies, Coimbatore

Nelson, S.A. 1992. Role of Krishi bhavans in agricultural development in Thiruvananthapuram district. M.Sc.(Ag.) thesis, K.A.U., Thrissur

Newcomb, T.M. 1951. *Social Psychology.* The Dryden Press, New York

Nizamudeen, A. 1996. A multi-dimensional analysis of kuttimulla cultivation in Alappuzha district. M.Sc. (Ag.) thesis, K.A.U., Thrissur

Ogburn, W.F., and Nimkoff, M.F. 1964. *A handbook of sociology.* Eurasia publishing house Pvt. Ltd., New Delhi

Oxford English dictionary. 1993. Oxford University press, New Delhi

Padmanabhan, V.B. 1981. A study on the influence of labour efficiency on adoption of improved agricultural practices. K.A.U., Thrissur

Pandyaraj, S. 1978 . A study of the communication behaviour of Agricultural Extension personnel. K.A.U., Thrissur

*Parsons, T. and Shills, E.A. 1965. *Towards a general theory of action.* Harvard University press, Massachusetts

Parvathi, S. 1995. A field experiment on farm women's congnitive domain relating to post harvest technologies. Ph.D. thesis, T.N.A.U., Coimbatore

Patnaik, S.C., and Devi, S. 1986. An assessment of women's economic contribution to the farm sector. A micro level study. *Journal of Rural Development* 5 : 480-490

Perumal, G., and Uthayakumar, P. 1984. An analytical study on the selection and role of contact farmers in T and V system. *Workshop on charging perspective in Extension : Background Papers.* N.I.R.D., Hyderabad

Pestonjee, D.M., Pareek, U., and Rao, T.V. 1981. *Behavioural Process in Organisations.* Oxford and IBH Publishing company, New Delhi. PP. 27

Pilliair. S. 1985. Impact of Socio-cultural and production oriented programme implemented among weaker sections. M.Sc.(Ag.) thesis, A.C.R.I., T.N.A.U., Madurai

Pradeepkumar, R.1993. Aspirations of educated unemployed youth for self employment in agricultural and allied fields. M.Sc. (Ag.) thesis, K.A.U., Thrissur

Pradhan, B. 1983. The role of women in household production system and rice farming in Nepal. *Women in rice farming.* 257-285

Prakash, R. 1989. Sequential analysis of constraints in increasing production of rice and coconut in Kerala. Ph. D. thesis, K. A. U., Thrissur

Prasad, M. R. 1978. A study on farmers functional literacy programmes. M.Sc. (Ag.) thesis, K. A. U., Thrissur

Prasad, M. V. and Mrutyunjayan, N. 1992. Training needs of tribal farmers on paddy cultivation. *Indian J. Ext. Edn.* **28** : 124-128

Pulamte, L. and Babu, R. A. 1993. Adoption of modern rice technology by Manipur hill farmers. *Indian J. Ext. Edn.* **29** : 136-138

Punia, R. K., Kaur, S. and Deep, S. 1991. Women agricultural production process in Haryana. *Women in Agriculture.* 77-96

Puri, S. 1972. Decision making pattern with respect to farm related and family decisions. *Indian J. Ext. Edn.* **8** : 61-67

Raji, R. J. 1991. Impact of training programme on adoption of irrigation management practices in paddy. M.Sc. (Ag.) thesis, T.N.A.U., Madurai

Rajula Devi, A. K. 1992. How poor are women in rural India. *Asia Pacific Journal of Rural Development* **2** : 1-34

Ramachandran, C. 1992. Impact of rice minikit trials on the adoption behaviour of farmers, M.Sc. (Ag.) thesis, K. A. U., Thrissur

Reddy, S. V. and Sahay, B. N. 1973. Differential characteristics of farm leaders in progressive and non-progressive village. *Indian Journal of Extention Education.* 9 : 87 - 91.

Renukaradhaya, B. N. 1983. A critical study on farmers training programme on selected command areas on Karnataka State. Ph. D. thesis, U. A. S., Bangalore

Rexlin, R. 1984. Womens participation in decision making on farm practices. M.Sc. (Ag.) thesis, T.N.A.U., Coimbatore

*Robbins, G. J. and Jones, B. S. 1976. *Effective communication for todays manager.* Lebhar friedman Books. Inc., New York

*Rogers, E. M. and Shoemaker, F. F. 1971. *Communication of Innovations* - A cross cultural approach. The Free Press, Collier Macmillan Ltd., New York

Roy, R. N. 1972. Training needs of farmers in relation of high yielding varieties of paddy. Ph. D. thesis, I.A.R.I., New Delhi

Saiba, A. 1985. Effect of cropping pattern on employment of females. *Indian J. of Agric. Econ.* **40** : 264

Sangeetha, K. G. 1997. Managerial behaviour of commercial banana growers in Thiruvananthapuram district. M. Sc. (Ag.) thesis, K.A.U., Thrissur

Sankariah, C. H. and Singh, K. N. 1967. Predictive analysis of factors related with knowledge of improved practices of vegetable cultivation. *Ind. J. of Ext. Edn.* **3** : 67-73

Sarbin, T. R. 1954. Role theory. In Garden and Lindzey (Ed.) *Handbook of social psychology.* Addision Wesley Publishing Co., Cambridge

Sargent, S. 1951. Concept of role and ego in contemporary psychology. In Rohrer, M. J. and Sherif, M. (Eds.). Social Psychology at Cross Roads. Harper and Brothers, New York

Savarimuthu, G. V. 1981. Training needs of farm women. M.Sc. (Ag.) thesis, T.N.A.U., Coimbatore

Sawer, J. B. 1973. Predictors of the farm involvement in General management and adoption decisions. *Rural Sociology* **38** : 413-425

Seema, B. 1986. Role of farm women in the decision making process of a farming community. M.Sc. (Ag.) thesis, K.A.U., Thrissur

Senthamarai, G. 1996. Changing trends in role performance of farm wormen. A. C. & R. I., T. N.A. U., Madurai.

Sethy, B. 1982. A study of the entrepreneurship characteristics of the farmers of an agriculturally advanced district of Orissa. Ph.D. thesis, I.A.R.I, New Delhi

Shanmugavadivu, N. 1992. Multidimensional role performance of rural women in farm and home - An analysis. A.C.R.I., T.N.A.U., Madurai

Shanthy, R. 1996. Comparative analysis of characteristics of women labourers engaged in rice farming in the social system of Kollam and Kanyakumari district. Ph. D. thesis, K.A.U., Thrissur

Sharma, O. P. 1972. Comparative study of scales of Likert and Guttman. A technique for measuring attitude of extension personnel. Singh, P.R.R. (Ed.), Studies n Extension Education. N.I.C.D., Hyderabad

Sharma, M. L., Sharma, P. N., Jaiswal, P. K. and Sengar, R. S. 1988. Role expectation and role performance of rural agricultural extension officers of T and V system in Madhya Pradesh. *Ind. J. Ext. Edn.* **24** : 175-178

Sharma, D. K. and Singh, T. R. 1970. Participation of rural women in decision making process related to farm business. *Ind. J. Ext. Edn.* **6** : 43-48

Sheela, K. A. and Kateppa, Y. 1995. A comparative study on time utilisation patterns of farm women practicising different enterprises. *Ind. J. Ext. Edn.* **6** : 33-34

Sherwani, M.1983. Creating more jobs for female workers. *Kurukshetra* 32 : 29

Shilaja, S. 1990. Role of women in mixed farming. Ph.D thesis, U.A.S., Bangalore

Shilaja, S. and Jayaramiah. 1992. Training needs of farm women in Kerala. *Indian Journal of Adult Education* **53** : 45-48

Sikka, B. K. and Swarup, R. 1990. Role of women in hill farming : A study of Himachal Pradesh. *Agricultural Situation in India* **44** : 853-856

Singh, A. K. 1981. Study of some agro economic socio-psychological and extension communication variables related with the level of fertilizer use of farmers. Ph.D. thesis, Bidhan Chandran Krishi Vishwa Vidyalaya, Kalyani, West Bengal

Singh, B. N. 1989. Women work force - problems and prospects. *Yojana* 33 : 12.

Singh, R. 1982. Value orientation in relation to adoption of farm mechanization of farmers in Ludhiana, Punjab. *Ind. J. Ext. Edn.* **8** : 10-15

Singh, Y. P. 1973. *Key communicators of Agricultural Innovations.* Satish Book Enterprise, Agra. pp : 172

Singh, K. and Chander, S. 1983. Involvemant of rural women in farm credit. *Agric. Bankers.* **5** : 22-25

Singh, T. R. and Singh, S. N. 1980. Differential perception of the characteristics of innovations of farming couples for high yielding varieties of what and family planning practices. *Ind. J. Ext. Edn.* 16 : 16-21

Singh, A. K., Sharma, J. S. and Singh, D. K. 1988. Participation of rural women in Agriculture in the hills of Uttar Pradesh. *J. of Rural Devpt.* 7 : 289-297

Singh, M. P. and Sharma, N. 1988. Hill women of Uttar Pradesh : *A Survey. Indian farming* **36** : 8

Singh, M. P. and Sharma, N. 1991. Women in rice based farming system in Utter Pradesh. *Women in Rice Farming* . 97-109

Sisodia, J. S. 1985. Role of farm women in agriculture : A study of chambal command area of Madhya Pradesh. *Ind. J. Agric. Econ.* **11** : 223-227

Sobhana, G. 1982. An analysis of the role of Junior Agricultural Development Programmes in Kerala. M.Sc. (Ag.) thesis, K.A.U., Thrissur

Subashini, R. 1990. Role of farm women in hill vegetable farming. M.Sc. (Ag.) thesis, T.N.A.U., Coimbatore

Subramaniam, K. 1986. Communication behaviour of tribal farmers - A system analysis. M.Sc.(Ag.) thesis, K.A.U., Thrissur

Sudharani, P. and Raju, V. T. 1991. Participation of women in agricultural operations. *Ind. J. Ext. Edn.* **27** : 55-60

Sumathy, V. B. 1987. A study on achievement motivation and management orientation of small coffee growers in Chickmangalur district, Karnataka State. M.Sc. (Ag.) thesis, in Agric. Ext. Univ. of Agri. Sci., Bangalore

Supe, S. V. 1969. Factors related to different degrees of rationality in decision making among farmers. Ph.D. thesis in Agri. Ext. Indian Agric. Res. Inst., New Delhi

Tantray, A. M. and Nanda, R. 1991. Constraints in increasing rice production. *Ind. J. Ext. Edn.* **27** : 124-126

Taylor, F. W. 1991. *The principles of scientific management.* Harper & brothers, Newyork. 129 - 130.

Thakur, S. P. 1991. Farm female worker employment in Himachal Pradesh. *Women in Agriculture.* 53-69

Thamarniselvi, K. 1989. Developing a training model for viticulturists. M.Sc. (Ag.) thesis, A.C.R.I., T.N.A.U., Madurai

Thenmozhi, J. 1990. Participation of women in farm activities: An expost facto study. M.Sc.(Ag.) thesis, A.C.R.I., T.N.A.U., Madurai

Thimmaraju, G. 1989. Study on achievement motivation and economic performance of coconut growers in Tumkur district. M.Sc. (Ag.) thesis, Agric. Ext. Univ. of Agric. Sci., Bangalore

Thurstone, L.L. 1946. *Comment Amer. J. Social.* **52** : 39-50

Tripathy, A., Singh, K.N. and Sankar, S. 1982. Constraints in adoption of high yielding rice technology in coastal Orissa. *Ind. J. Ext. Edn.* **18** : 91-95

Trivedi, G. 1963. Measurement Analysis of socio economic status of rural families. Ph.D. thesis., I.A.R.I., New Delhi.

Tully, J. 1968. farmers problems of behavioural change. *Human relations.* **21** : 373-382.

Varma, K. 1985. Role of women in raising paddy nursery. *Journal of Home Sci.* 23 : 3

Varma, P.H. 1996. A multi dimension analysis of self employment among farm women. M.Sc. (Ag.) thesis, K.A.U., Thrissur

Varma, S. K. and Sinha, B. P. 1991. Inter gender sharing of drudgery in cultivation of major crops. *Ind. J. Rur. Devpt.* **27** : 18-23

Vijayalakshmi, P. 1995. Role of farm women in turmeric cultivation of Guntur district in Andra Pradesh. M.Sc. (Ag.) thesis, A.P.A.U., Bapatla

Vimala, D.D. 1989. A study on communication behaviour of farm women in progressive and less progressive villages. M.Sc. (Ag.) thesis, A.C & R.I., T.N.A.U., Madurai

Waghmare, S. K. and Pandit, V. K. 1982. Constraints in the adoption of wheat technology by tribal farmers of Madhya Pradesh. *Indi. J. Ext. Edn.* 18

Warris, A., Reddy, M. N. and Anjanappa, M. 1990. Role performance and job satisfaction of the Anganawadi workers of I.C.D.S in Andhra Pradesh. *Ind. J. Ext. Edn.* **26** : 119-121

Websters Third New International Dictionary of the English language unbridged. Vol. III. (1988), Encyclopaedia Britanica, Inc., Chicago

Whitehead, A. 1979. Some preliminary notes on the subordination of women. *Institute of development studies bulletin* 10 (3) 1995

Wilkening , A. 1952. Information leaders and innovators in farm practices. *Rur. Sociol.* **17** : 272-275

Wilkening, E. A. and Johnson, P. 1958. A case study in decision making a farm owner sample in wisconsin. *American Sociol. Rev.* **6** (1&12)

Yadav, S. 1982. Role of women in decision making related to farm business. M.Sc. (Ag.) thesis, H.A.U., Hisar

APPENDICES

APPENDIX-I

Department of Agrl. Extension,
College of Agriculture,
Vellayani.

Dr. S. Shilaja
Associate Professor,
Department of Agrl. Extension,
College of Agriculture,
Vellayani.

Dear Sir/Madam,

Ms. S. Haemalatha, M.Sc. Student of this department has taken up a research study on "GENDER ANALYSIS OF RICE FARMERS IN THIRUVANANTHAPURAM DISTRICT" under my guidance. She is developing a scale on "Attitude of rice farmers towards rice based farming system".

In this regard some statements expressing the attitude of rice farmers towards rice based farming system are listed. On the right hand side of each statement, there is a set of columns representing the degree of favourableness of the statements. You are requested to tick (√) in the appropriate column to indicate your judgement about the statement as to its degree of favourableness on the five point continuum viz. 'most unfavourable', 'unfavourable', 'neutral', 'favourable' and 'most favourable'. NOTE THAT THE RESPONSE INDICATES THE FAVOURABLENESS OF THE STATEMENTS IN THE REAL SENSE AND NOT OF YOURS AS A JUDGE. Please see that no statement is left out and kindly return the same at the earliest possible time.

Thanking you in advance for your kind contribution in completing the portion of her research work.

Yours sincerely

(Dr. S. SHILAJA)

ATTITUDE OF RICE FARMERS TOWARDS RICE BASED FARMING SYSTEM

Sl. No	Statements	Most unfavourable	Unfavourable	Neutral	Favourable	Most favourable
1	In rice based farming system unpredictable failure of crops is effectively managed					
2	Rice based farming system can be practiced only in areas of assured water supply					
3	In rice based farming system initial investment is very high					
4	More profit is ensured in rice based farming system					
5	Cost of cultivation of paddy can be effectively reduced in rice based farming system					
6	In rice based farming system high yielding varieties of paddy gives good results					
7	In adopting rice based farming system equal attention cannot be given to individual enterprise					
8	In rice based farming system the land can be put to intensive use					
9	Rice based farming system reduces the unemployment of the farmer					
10	Rice based farming system cannot be adopted by farmers with low scientific knowledge					
11	In rice based farming system there is effective utilization of family labour					
12	Farmers lacking managerial skill cannot take up rice based farming system					
13	By adopting rice based farming system fodder requirement of cattle can be completely met					
14	Rice based farming system is highly labour intensive than taking up rice farming alone					
15	Leisure time of farmers can be effectively utilised in rice based farming system					
16	Rice based farming system provides additional income to the women folk					

	of the farm family					
17	Resource poor farmers cannot adopt rice based farming system					
18	Nutritional requirement of farm family can be met by adopting rice based farming system					
19	Fuel requirement of farm family can be met by adopting rice based farming system					
20	Rice based farming system demands intensive guidance from extension personnel					
21	In rice based farming system net return of the farmer is higher than the conventional cropping system					
22	Rice based farming system is successful where there is adequate marketing facilities					
23	Inclusion of livestock in rice based farming system supplements the manurial requirement of the farmer					
24	Farmers having high investment capacity alone can take up rice based farming system					
25	Rice based farming system provides subsidiary occupation to the women folk of the farm family					
26	Adoption of rice based farming system improves the organising capacity of the farmer					
27	Farmers having adequate land resources alone can take up rice based farming system					
28	Effective time utilisation of women folk of the farm family is possible in rice based farming system					
29	Rice based farming system is a potential field for self employment					
30	Wastage of farm by-products can be considerably reduced in rice based farming system					
31	Regular return is assured in rice based farming system					
32	Production and productivity can be considerably improved in rice based farming system					
33	Rice based farming system is a boon					

	to small and marginal farmers					
34	In rice based farming system additional income improves the economic status of the farm family					
35	Rice based farming system demands excessive financial assistance					
36	Maximum utilisation of the available resources of the farmer is possible in rice based farming system					
37	Technological know-how of women folk is improved by taking up rice based farming system					
38	Potentiality of the farmer is better utilised in rice based farming system					
39	Adoption of technology is high among farmers in rice based farming system					
40	Success in rice based farming system is based on complementary interaction between livestock and crop enterprise					
41	In rice based farming system operational efficiency is increased by efficient utilisation of operational resources					
42	Rice based farming system is more economical than cultivating paddy alone					
43	The extra effort to be put forth by the farmer and his family in rice based farming system is not worth the effort					
44	Livestock enterprise makes the farm a self sufficient unit					
45	Rice based farming system can sustain a farmer					

APPENDIX II

DEPARTMENT OF AGRICULTURAL EXTENSION
COLLEGE OF AGRICULTURE
VELLAYANI
THIRUVANANTHAPURAM

GENDER ANALYSIS OF RICE FARMERS IN THIRUVANANTHAPURAM DISTRICT

INTERVIEW SCHEDULE

PART : I

1. Name and address of the respondent

Respondent No :
Date :

2. Age

3. Caste

4. What is your educational status ?

Illiterate
Read only
Can read and write
Primary school
Middle school
High school
College and above

5. What is your occupation ?

Cultivation
Agricultural labour
Business
Independent profession
Government service

6. What is the total area of land possessed by your family ?

Wet land	:	Cents
Garden land	:	Cents

7. Annual income

Income from agriculture	:
Income from other sources	:
Total	:

8. Farming experience : ..... years

9. Contact with extension agency
How often do you come in contact with the following personnel

Sl. No	Personnel	Frequency			
		Once in a week	Once in a month	Occasionally	Never
1	Agricultural demonstrator				
2	Agricultural officer				
3	Agricultural scientist				

10. Exposure to mass media

Sl. No	Particulars	Response
1	Do your family own radio If yes, a) Do you hear radio b) Do you hear agricultural programmes	Yes / No Yes / No Always / Sometimes / Never
2	Do your family subscribe Newspaper If yes, a) Do you read Newspaper b) Do you read agricultural news	yes / No Yes / No Always / Sometimes / Never
3	Do your family subscribe farm magazines if yes, Do you read farm magazines	Yes / No Always / Sometimes / Never
4	Do your family possess television If yes, Do you see television programmes if yes, Do you see programmes related to agriculture	Yes / No Yes / No Always / Sometimes / Never

11. Cosmopoliteness

	Have you ever visited the neighbouring village / town ?	Yes / No
	If yes, how often do you visit the town ?	Most often / Frequently / sometimes / Never
	Purpose of visit	Agricultural / Personal / Entertainment

12 Self confidence

Here are some statements. Please give your opinion as Strongly agree, Agree, Undecided, Disagree and Strongly disagree

Sl. No	Statements	SA	A	UD	DA	SDA
1	I feel no obstacle can stop me from achieving my final goal					
2	I am generally confident of my ability					
3	I am bothered by the inferiority feelings that I cannot compete with others					
4	I am not interested to do things at my own initiatives					
5	I usually work out things for myself rather than to get someone to show me					
6	I get discouraged easily					
7	Life is a strain for me much of the time					
8	I find myself worrying about something or other					

13. Self concept

Here are some statements. Please give your degree of consensus to each of the following statements

Sl. No	Statements	SA	A	UD	DA	SDA
1	I am interested in people and things happening around me					
2	I am active in solving the cultivation problem					
3	I am systematic in all my activities so that I can finish the works in time					
4	I am determined to achieve my goal as a farmer					
5	I am a person who believe that every experience, bitter or sweet is good					
6	I am not courteous in my dealings with other farmers					
7	I am eager to learn more on all subjects					
8	I am not capable to easily adjusting to new situations					

14. Scientific orientation

Various opinions are there regarding scientific agriculture. Give your opinion for the following statements

Sl. No	Statements	Agree	Undecided	Disagree
1	New methods of farming gives better results to a farmer than the old methods			
2	The way of farming by our forefathers is still the best way to farm as on today			
3	Even a farmer with lot of farm experiences should use new methods of farming			
4	A good farmer experiments with new ideas in farming			
5	Though it takes time for a farmer to learn new methods in farming it is worth the effort			
6	The traditional methods of farming have to be changed in order to raise the standard of living of a farmer			

15. Value orientation

Here are some statements. Please give your opinion as Strongly agree, Agree, Undecided, Disagree and Strongly disagree

Sl. No	Statements	SA	A	UD	DA	SDA
1	The good old days were golden					
2	With the help of scientific knowledge men will be able to solve all the mysteries of the world					
3	Inter-caste marriages are not desirable					
4	Equal status for men and women is not desirable					
5	Man proposes God disposes					
6	It is better to meet a doctor than a siddha for cure of illness.					
7	Social customs for which even if no proper explanation can be given should be adhered to					
8	Man's life is determined by his fate.					
9	Change is essential for a society.					
10	God can do miracles which science can never explain					
11	Science has benefited human society much more than the evil it has produced.					
12	One should not hesitate to accept new things created by science.					

16. Economic motivation

Here are some statements please give your agreement or disagreement and undecidedness about each of the following statements.

Sl. No	Statements	SA	A	UD	DA	SDA
1	A farmer should work towards higher yields and economic profit.					
2	The most Successful farmer is one who makes more profit					
3	A farmer should try any new farming idea which may earn him more money					
4	A farmer should grow more food crops for home consumption and to increase monetary profits.					
5	It is difficult for the farmer's children to make good start unless he provides them with economic assistance.					
6	A farmer must earn his living but the most important thing in life cannot be defined in economic terms.					

17. Risk orientation

Indicate your opinion about the following statements

Sl. No	Statements	Agree	Undecided	Disagree
1	A farmer should grow large number of crops to avoid greater risks involved in growing one or two crops.			
2	A farmer should take more of a chance in making a big profit then to be content with a smaller but less risky profit			
3	A farmer who is willing to take greater risks than the average farmer usually does better financially.			
4	It is good for a farmer to take risks when he knows his chance of success is fairly high			
5	It is better for a farmer not try new farming methods unless most other farmer's have used them with success.			
6	Trying an essentially new method in farming by a rice farmer involves risk but it is worth it			

18. Innovation proneness

There are three sets of statements from each

Sl. No	Statements	Agree / Disagree
1	a) I try to keep myself upto date with information on new farm practices but that does not mean that I try out all new methods on my farm b) They talk of many new farm practices these days but who knows whether they are better than the old ones c) I feel restless till I try out a new farm practice that I have heard about.	
2	a) From time to time I have heard of several new farm practices and I have tried out most of them in the last few years. b) Usually I want to see the result my neighbours obtain before I try out the new farm practices. c) Somehow I believe that the traditional ways of farming are the best.	
3	a) I am cautious about trying a new practice. b) After all our forefathers were wise in their farming practices and I don't see any reason for changing these old methods. c) After all new farm practices are not successful however if they are promising I would surely like to adopt them.	

19. Knowledge in rice farming

1. Name two high yielding variety of rice a)
   b)
2. What is the seed rate / acre in case of
   a) Transplanted
   b) Broadcasted
3. What is the recommended spacing for transplanted rice ?
4. Name one chemical used for seed treatment
5. What is the recommended fertilizer dosage for rice ?
6. What is the rate of farm yard manure applied to rice crop ?
7. Name two important pest of rice ?

a)

b)

8. What is the name of pesticides used to control these pest ?

a)

b)

9. Name two important diseases of rice ?

a)

b)

10. What is the control measure followed to control the disease ?

20. Extent of adoption

1. Area under rice cultivation in acres

First crop :

Second crop :

2. In how much area you have cultivated high yielding variety of rice?
3. What is the seed rate you have used?
4. What is the quantity of chemical used for seed treatment.
5. If you have transplanted your crop, what spacing you have adopted?
6. What was the rate of farm yard manure used by you for your crop.
7. Have you applied any weedicide for your crop, if so

Name of chemical Dosage

1.

2.

8. What was the fertilizer doze you have applied in split doses

Basal Top dressing

N.

P.

K.

9. Have you applied any plant protection chemicals to your crop, if so:

Name of chemical Dosage

1.

2.

21. Attitude of rice farmers towards rice based farming system.

Please indicate your opinion about the following statements.

Sl. No	Statements	SA	A	UD	DA	SDA
1	Cost of cultivation of paddy can be effectively reduced in rice based farming system					
2	Maximum utilization of the available resources of the farmer is possible in rice based farming system					
3	Rice based farming system cannot fully sustain a farmer					
4	Adoption of rice based farming system improves the organising capacity of the farmer					
5	Womenfolk lacking technological knowhow cannot takeup rice based farming system					

6	Adoption of technology is high among farmers in rice based farming system					
7	Resource poor farmers cannot adopt rice based farming system					
8	In rice based farming system additional income improves the economic status of the farm family					
9	In rice based farming system there is effective utilization of family labour					
10	The extra effort to be put forth by the farmer and his family in rice based farming system is not worth the effort					
11	Leisure time of farmers can be effectively utilized in rice based farming system					
12	Cultivating paddy alone is more economic than rice based farming system					
13	Production and productivity of livestock and crop enterprise can be considerably improved in rice based farming system					

PART II

A. **Role performance of rice farmers in rice farming activities**

Sl. No	Items	Role performance			
		Most often	Often	Sometimes	Never
1	Preparation of nursery bed				
2	Seed treatment with fungicides				
3	Sowing seeds in nursery bed				
4	Maintaining water depth in nursery				
5	Pulling out seedlings from nursery bed				
6	Ploughing the mainfield				
7	Puddling				
8	Levelling				
9	Trimming and plastering the field bunds				
10	Spreading the farm yard manure and green manures in the mainfield				
11	Transporting				
12	Irrigating the mainfield				
13	Forming drainage channels				
14	Gap filling				
15	Plugging the rat holes				
16	Application of manures and fertilizers				
17	Scaring birds				
18	Weeding				
19	Harvesting				
20	Stacking and bundling the harvested produce				
21	Transporting the harvested produce to the threshing floor				
22	Threshing				
23	Winnowing				
24	Drying				
25	Dehusking				
26	Processing of seeds				
27	Storage of dried seeds				
28	Supervising the labourers				
29	Preparing and carrying food for labourers				
30	Marketing the produce				
31	Management of milch and draught animal				
32	Maintenance of cattle shed				
33	Feeding the animals				

34	Taking animals for grazing				
35	Milking the animals				
36	Taking care of sick animals				
37	Preparation of processed food from milk				
38	Marketing of milk and milk products				

B. **Role perception of rice farmers in rice farming activities**

Sl. No	Items	Very important	Important	Not important
1	Preparation of nursery bed			
2	Seed treatment with fungicides			
3	Sowing seeds in nursery bed			
4	Maintaining water depth in nursery			
5	Pulling out seedlings from nursery bed			
6	Ploughing the mainfield			
7	Puddling			
8	Levelling			
9	Trimming and plastering the field bunds			
10	Spreading the farm yard manure and green manures in the mainfield			
11	Transporting			
12	Irrigating the mainfield			
13	Forming drainage channels			
14	Gap filling			
15	Plugging the rat holes			
16	Application of manures and fertilizers			
17	Scaring birds			
18	Weeding			
19	Harvesting			
20	Stacking and bundling the harvested produce			
21	Transporting the harvested produce to the threshing floor			
22	Threshing			
23	Winnowing			
24	Drying			
25	Dehusking			
26	Processing of seeds			
27	Storage of dried seeds			
28	Supervising the labourers			
29	Preparing and carrying food for labourers			

30	Marketing the produce			
31	Management of milch and draught animal			
32	Maintenance of cattle shed			
33	Feeding the animals			
34	Taking animals for grazing			
35	Milking the animals			
36	Taking care of sick animals			
37	Preparation of processed food from milk			
38	Marketing of milk and milk products			

C. **Role performance of rice farmer in decision making**

Sl.		Joint decision making			Independent decision making		
No		AW	ST	N	AW	ST	N
1	Choice of the crop and variety						
2	Selecting quality seeds						
3	Seed treatment						
4	Method of sowing						
5	Seed rate to be followed						
6	Chemicals to be used in seed treatment						
7	Time of pulling out seedlings from nursery bed						
8	Type of ploughing to be done						
9	Number of labourers required for land preparation						
10	Spacing to be adopted for planting seedling						
11	Number of labourers required for transplanting						
12	Time of applying manures and fertilizers						
13	Quantity of manures and fertilizers to be applied						
14	Interval of irrigation to be given						
15	Time of weeding						
16	Number of labourers required for weeding						
17	Type of fungicides and pesticides to be used						
18	Place where the fertilizers are to be purchased						
19	Time of harvest						
20	Number of labourers required for harvesting						
21	Method of threshing						
22	Quantity of grains to be stored						
23	Quantity of grains to be sold						
24	Method of processing the seed						
25	Marketing the harvested produce						
26	Deciding the expenditure of farm and home						

27	Wages to be paid to the labourers						
28	Type of cattle breed to be grown						
29	Number of animals to be maintained						
30	Care and management of animals						
31	Type of feed to be given						
32	Marketing the milk and fixing the price						

D. **Role perception of rice farmer in decision making**

Sl. No	Decision making area	Very important	Important	Not important
1	Choice of the crop and variety			
2	Selecting quality seeds			
3	Seed treatment			
4	Method of sowing			
5	Seed rate to be followed			
6	Chemicals to be used in seed treatment			
7	Time of pulling out seedlings from nursery bed			
8	Type of ploughing to be done			
9	Number of labourers required for land preparation			
10	Spacing to be adopted for planting seedling			
11	Number of labourers required for transplanting			
12	Time of applying manures and fertilizers			
13	Quantity of manures and fertilizers to be applied			
14	Interval of irrigation to be given			
15	Time of weeding			
16	Number of labourers required for weeding			
17	Type of fungicides and pesticides to be used			
18	Place where the fertilizers are to be purchased			
19	Time of harvest			
20	Number of labourers required for harvesting			
21	Method of threshing			
22	Quantity of grains to be stored			
23	Quantity of grains to be sold			
24	Method of processing the seed			
25	Marketing the harvested produce			
26	Deciding the expenditure of farm and home			
27	Wages to be paid to the labourers			
28	Type of cattle breed to be grown			
29	Number of animals to be maintained			
30	Care and management of animals			
31	Type of feed to be given			
32	Marketing the milk and fixing the price			

PART III

Training needs of rice farmers

Here is a list of training needs please indicate your response to these training areas

Sl. No	Items	Most needed	Needed	Somewhat needed	Not needed
1	Selection of good variety				
2	Selection of quality seeds				
3	Seed treatment				
4	Preparation of nursery bed				
5	Land preparation				
6	Depth of planting to be adopted				
7	Correct spacing to be adopted				
8	Identification of pest and diseases				
9	Handling the sprayers and dusters				
10	Correct stage of harvesting crop				
11	Safe use of insecticide and fungicides				
12	Supervision and management of farm enterprise				
13	Farm management				
14	Training in rice post harvest technology				

PART IV

Constraints experienced by rice farmers

Please indicate whether you identify any of these as the constraints in rice farming

Sl. No	Constraints	Agree	Disagree
1	Shortage of quality seeds		
2	Lack of irrigation facilities		
3	High cost of cultivation		
4	High cost of labourers and scarcity of labourers during peak season		
5	High cost of plant protection chemicals		
6	High incidence of pest and diseases		
7	Lack of expertise in handling agricultural implements		
8	Lack of technical guidance		
9	Inadequate and untimely supply of inputs		
10	Lack of awareness of the use of chemicals to control pest and diseases		

GENDER ANALYSIS OF RICE FARMERS IN THIRUVANANTHAPURAM DISTRICT

BY

S. HAEMA LATHA

ABSTRACT OF THE THESIS
SUBMITTED IN PARTIAL FULFILMENT
OF THE REQUIREMENT
FOR THE DEGREE OF
MASTER OF SCIENCE IN AGRICULTURAL EXTENSION
FACULTY OF SCIENCE
KERALA AGRICULTURAL UNIVERSITY

DEPARTMENT OF AGRICULTURAL EXTENSION
COLLEGE OF AGRICULTURE
VELLAYANI, THIRUVANANTHAPURAM

1997

ABSTRACT

The present study under the title 'Gender analysis of rice farmers in Thiruvananthapuram district' was undertaken to study the role perception and role performance of rice farmers with regard to rice farming activities and decision making and its relationship with personal and psychological factors of rice farmers. The study also revealed their socio-economic profile, their training need and constraints experienced by the rice farmers.

The study was conducted in Thiruvananthapuram district covering three sub-divisions by concentrating in three panchayats using stratified three stage sampling method. A sample of 180 rice farmers, consisting of 60 men farmers in men headed household, 60 women in men headed household, 30 women in defacto household and 30 women in dejuri household formed the respondents of this study. Personal interview with the help of a well structured and pre-tested interview schedule was adopted to collect the data from the respondents, and suitable statistical techniques were employed for the analysis of data.

Thirty eight roles in rice farming were identified and it was found that men farmers perceived roles like ploughing the main field, levelling, puddling, trimming and plastering the field bunds, spreading farm manure and green manure in the field, irrigating the main field, forming drainage

channel, application of manures and fertilizer and marketing the produce and the men farmers were also perform the above said roles. Majority of women respondents in men headed, defacto and dejuri households perceived and performed roles like pulling out seedlings from nursery bed, transplanting, weeding, winnowing, dehusking, supervising the labourers, scaring birds, harvesting, storage of dried seeds, processing of seeds, management of animals and marketing of milk and preparing processed food from milk. With regard to decision making, 32 decision making areas were identified. It was found that men farmer perceived areas like seed rate to be followed, time of pulling out seedlings from nursery bed, type of ploughing to be done, interval of irrigation be given, time of weeding, number of labourers required for weeding and harvesting, method of threshing and quantity of grains to be stored. Also almost all the decisions related to rice farming were taken independently by the men farmers and joint decisions was found to be higher in areas like deciding the expenditure of farm and home, type and number of animal breed to be grown and marketing of milk and fixing the price whereas the perception and performance of women in men headed household is found to be limited, they perceived areas like choice of the crop, deciding like expenditure of farm and home, type of animal breed to be grown and number of animals to be maintained. These women took independent decisions in areas like care and management of animals and marketing of milk and fixing the price of milk products. Whereas decision related to financial aspects were taken

jointly by these women. Majority of respondents in defacto and dejuri household perceived almost all the decision making areas. Majority of the decisions were taken independently by the women in dejuri household, whereas the women in defacto household took majority of decisions only after consulting their male counterpart.

Categorywise comparison of rice farmers based on role perception and performance in rice farming activities and decision making showed that there exist no significant difference between groups with respect of role perception in rice farming activities, whereas there exist a significant difference between the four categories of rice farmers with respect of role perception in decision making and men were found to be superior in this. A significant difference was also observed with regard to role performance in activities and women in defacto household were found to be superior. With respect to joint and independent decision making there exist a significant difference and it was found that joint decision making was found to be higher in defacto household and maximum independent decision was taken by men farmer in men headed household.

Majority of respondents except women in dejuri household belonged to middle age whereas women in dejuri households belonged to old age. More than forty percent of respondents in all categories were having middle school whereas women in dejuri household were, able to read and

write only sixty percent of all the respondents had agriculture as their main occupation and were having area under wetland below 100 cents and fifty percent of them had garden land below forty cents. Almost all the respondents in men headed and defacto households were having an annual income of less than Rs 20,000 whereas women in dejuri house hold were having annual income of Rs 11,000. Both men farmers and women farmers in dejuri households were having a farming experience of more than twenty years and the women in defacto and men headed household were having less than fifteen years of farming experience. Majority of the respondents were having high contact with extension agency, mass media contact, self confidence, self concept, scientific orientation, economic motivation, risk orientation, innovation proneness, knowledge in rice farming, extent of adoption and attitude towards rice based farming system. Whereas the respondents in defacto dejuri household and men farmers had low value orientation, except women in men headed household who was found to have high value orientation.

Categorywise comparison of rice farmers based on selected characteristics showed that significant difference exist between the groups with respect of age, caste, education, occupation, area under wetland, area under garden land, annual income, farming experience, contact with extension agency, exposure to mass media, cosmopoliteness, self

confidence, economic motivation, knowledge in rice farming and extent of adoption.

Significant and negative correlation was found between area under wetland, annual income, innovation proneness and knowledge in rice farming and role perception in rice farming activities with respect to men in men headed household. There exist a significant and positive correlation between extent of adoption and innovation proneness and role perception in decision making with regard to women in men headed household is concerned only caste showed a significant and negative correlation. Occupation, level of knowledge and extent of adoption showed a significant and negative relationship with respect to women in dejuri household.

In the case of men in the men headed household there exists a significant and positive correlation between age and role perception in decision making. Also contact with extension agency showed a negative relationship with role perception. Variables such as caste, annual income risk orientation showed a positive and significant correlation with role perception with regard to women in men headed household. As far as women in defacto household is concerned cosmopoliteness, area under wetland and exposure to mass media showed a positive and significant

correlation. In the case of women in dejuri households variable economic motivation showed a positive and significant relationship.

There exist significant correlation between occupation and role performance in farming activities with respect to men in men headed household. In the case of women in men headed household area under wetland showed a significant and positive relationship whereas occupation and education showed a negative relationship. Exposure to mass media showed a significant and positive correlation and with role performance while caste exhibited a significant, but negative correlation in the case of women in defacto household. With regard to women in dejuri household only one variable age showed a significant and negative correlation.

Significant and positive relationship was found between risk orientation and role performance in joint decision making. Another variable which showed a negative correlation was self concept in the case of men in men headed household. There exist a significant and positive correlation between economic motivation and role performance, whereas attitude towards rice based farming system exhibited negative correlation with respect to women in men headed household. In the case of women in defecto household exposure to mass media, level of knowledge and extent to adoption exhibited positive and significant correlation with joint

decision making, whereas attitude towards rice based farming system was found to be correlated negatively.

In the case of men in men headed household self concept showed a significant and positive correlation with independent decision making further risk orientation showed a positive and significant relationship with respect to women in men headed household annual income showed a positive relationship and cosmopoliteness showed a negative correlation with independent decision making. Positive and significant correlation was found between education and occupation and independent decision making in the case of women in defacto household. In the case of women in dejuri household education exhibited positive correlation whereas age showed a negative correlation with respect to independent decision making.

Training needs of rice farmers was also assessed and it was found that the men farmers needed training in safe use of fungicides and pesticides, handling sprayers and dusters, identification of pest and diseases. Seventy percent of women in men headed household, defacto and dejuri household needed training in identification of pest and diseases, handling sprayers and dusters and safe use of insecticides and pesticides.

High cost of cultivation was stated as the main problem by more than eighty percent of the respondents in the four category. More than fifty

percent of the respondents also stated high cost of plant protection chemical and lack of irrigation as their main constraint. Fifty percent of the women respondents expressed lack of awareness in use of chemicals as their main problem. Whereas fifty percent of the four categories of farmers expressed lack of technical guidance as their main constraint.

GENDER ANALYSIS OF RICE FARMERS IN THIRUVANANTHAPURAM DISTRICT

BY

S. HAEMA LATHA

ABSTRACT OF THE THESIS
SUBMITTED IN PARTIAL FULFILMENT
OF THE REQUIREMENT
FOR THE DEGREE OF
MASTER OF SCIENCE IN AGRICULTURAL EXTENSION
FACULTY OF SCIENCE
KERALA AGRICULTURAL UNIVERSITY

DEPARTMENT OF AGRICULTURAL EXTENSION
COLLEGE OF AGRICULTURE
VELLAYANI, THIRUVANANTHAPURAM

1997

ABSTRACT

The present study under the title 'Gender analysis of rice farmers in Thiruvananthapuram district' was undertaken to study the role perception and role performance of rice farmers with regard to rice farming activities and decision making and its relationship with personal and psychological factors of rice farmers. The study also revealed their socio-economic profile, their training need and constraints experienced by the rice farmers.

The study was conducted in Thiruvananthapuram district covering three sub-divisions by concentrating in three panchayats using stratified three stage sampling method. A sample of 180 rice farmers, consisting of 60 men farmers in men headed household, 60 women in men headed household, 30 women in defacto household and 30 women in dejuri household formed the respondents of this study. Personal interview with the help of a well structured and pre-tested interview schedule was adopted to collect the data from the respondents, and suitable statistical techniques were employed for the analysis of data.

Thirty eight roles in rice farming were identified and it was found that men farmers perceived roles like ploughing the main field, levelling, puddling, trimming and plastering the field bunds, spreading farm manure and green manure in the field, irrigating the main field, forming drainage

channel, application of manures and fertilizer and marketing the produce and the men farmers were also perform the above said roles. Majority of women respondents in men headed, defacto and dejuri households perceived and performed roles like pulling out seedlings from nursery bed, transplanting, weeding, winnowing, dehusking, supervising the labourers, scaring birds, harvesting, storage of dried seeds, processing of seeds, management of animals and marketing of milk and preparing processed food from milk. With regard to decision making, 32 decision making areas were identified. It was found that men farmer perceived areas like seed rate to be followed, time of pulling out seedlings from nursery bed, type of ploughing to be done, interval of irrigation be given, time of weeding, number of labourers required for weeding and harvesting, method of threshing and quantity of grains to be stored. Also almost all the decisions related to rice farming were taken independently by the men farmers and joint decisions was found to be higher in areas like deciding the expenditure of farm and home, type and number of animal breed to be grown and marketing of milk and fixing the price whereas the perception and performance of women in men headed household is found to be limited, they perceived areas like choice of the crop, deciding like expenditure of farm and home, type of animal breed to be grown and number of animals to be maintained. These women took independent decisions in areas like care and management of animals and marketing of milk and fixing the price of milk products. Whereas decision related to financial aspects were taken

jointly by these women. Majority of respondents in defacto and dejuri household perceived almost all the decision making areas. Majority of the decisions were taken independently by the women in dejuri household, whereas the women in defacto household took majority of decisions only after consulting their male counterpart.

Categorywise comparison of rice farmers based on role perception and performance in rice farming activities and decision making showed that there exist no significant difference between groups with respect of role perception in rice farming activities, whereas there exist a significant difference between the four categories of rice farmers with respect of role perception in decision making and men were found to be superior in this. A significant difference was also observed with regard to role performance in activities and women in defacto household were found to be superior. With respect to joint and independent decision making there exist a significant difference and it was found that joint decision making was found to be higher in defacto household and maximum independent decision was taken by men farmer in men headed household.

Majority of respondents except women in dejuri household belonged to middle age whereas women in dejuri households belonged to old age. More than forty percent of respondents in all categories were having middle school whereas women in dejuri household were, able to read and

write only sixty percent of all the respondents had agriculture as their main occupation and were having area under wetland below 100 cents and fifty percent of them had garden land below forty cents. Almost all the respondents in men headed and defacto households were having an annual income of less than Rs 20,000 whereas women in dejuri house hold were having annual income of Rs 11,000. Both men farmers and women farmers in dejuri households were having a farming experience of more than twenty years and the women in defacto and men headed household were having less than fifteen years of farming experience. Majority of the respondents were having high contact with extension agency, mass media contact, self confidence, self concept, scientific orientation, economic motivation, risk orientation, innovation proneness, knowledge in rice farming, extent of adoption and attitude towards rice based farming system. Whereas the respondents in defacto dejuri household and men farmers had low value orientation, except women in men headed household who was found to have high value orientation.

Categorywise comparison of rice farmers based on selected characteristics showed that significant difference exist between the groups with respect of age, caste, education, occupation, area under wetland, area under garden land, annual income, farming experience, contact with extension agency, exposure to mass media, cosmopoliteness, self

confidence, economic motivation, knowledge in rice farming and extent of adoption.

Significant and negative correlation was found between area under wetland, annual income, innovation proneness and knowledge in rice farming and role perception in rice farming activities with respect to men in men headed household. There exist a significant and positive correlation between extent of adoption and innovation proneness and role perception in decision making with regard to women in men headed household is concerned only caste showed a significant and negative correlation. Occupation, level of knowledge and extent of adoption showed a significant and negative relationship with respect to women in dejuri household.

In the case of men in the men headed household there exists a significant and positive correlation between age and role perception in decision making. Also contact with extension agency showed a negative relationship with role perception. Variables such as caste, annual income risk orientation showed a positive and significant correlation with role perception with regard to women in men headed household. As far as women in defacto household is concerned cosmopoliteness, area under wetland and exposure to mass media showed a positive and significant

correlation. In the case of women in dejuri households variable economic motivation showed a positive and significant relationship.

There exist significant correlation between occupation and role performance in farming activities with respect to men in men headed household. In the case of women in men headed household area under wetland showed a significant and positive relationship whereas occupation and education showed a negative relationship. Exposure to mass media showed a significant and positive correlation and with role performance while caste exhibited a significant, but negative correlation in the case of women in defacto household. With regard to women in dejuri household only one variable age showed a significant and negative correlation.

Significant and positive relationship was found between risk orientation and role performance in joint decision making. Another variable which showed a negative correlation was self concept in the case of men in men headed household. There exist a significant and positive correlation between economic motivation and role performance, whereas attitude towards rice based farming system exhibited negative correlation with respect to women in men headed household. In the case of women in defecto household exposure to mass media, level of knowledge and extent to adoption exhibited positive and significant correlation with joint

decision making, whereas attitude towards rice based farming system was found to be correlated negatively.

In the case of men in men headed household self concept showed a significant and positive correlation with independent decision making further risk orientation showed a positive and significant relationship with respect to women in men headed household annual income showed a positive relationship and cosmopoliteness showed a negative correlation with independent decision making. Positive and significant correlation was found between education and occupation and independent decision making in the case of women in defacto household. In the case of women in dejuri household education exhibited positive correlation whereas age showed a negative correlation with respect to independent decision making.

Training needs of rice farmers was also assessed and it was found that the men farmers needed training in safe use of fungicides and pesticides, handling sprayers and dusters, identification of pest and diseases. Seventy percent of women in men headed household, defacto and dejuri household needed training in identification of pest and diseases, handling sprayers and dusters and safe use of insecticides and pesticides.

High cost of cultivation was stated as the main problem by more than eighty percent of the respondents in the four category. More than fifty

percent of the respondents also stated high cost of plant protection chemical and lack of irrigation as their main constraint. Fifty percent of the women respondents expressed lack of awareness in use of chemicals as their main problem. Whereas fifty percent of the four categories of farmers expressed lack of technical guidance as their main constraint.