ROLE OF FARM WOMEN IN PLANNING AND MANAGEMENT OF WATERSHED

By

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THESIS

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1998

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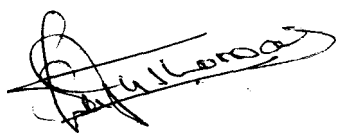
I hereby declare that this thesis entitled **"Role of farm women in planning and management of watershed"** is a bonafide record of research work done by me during the course of research and that the thesis has not previously formed the basis for the award to me of any degree, diploma, associateship, fellowship or other similar title, of any other University or Society.



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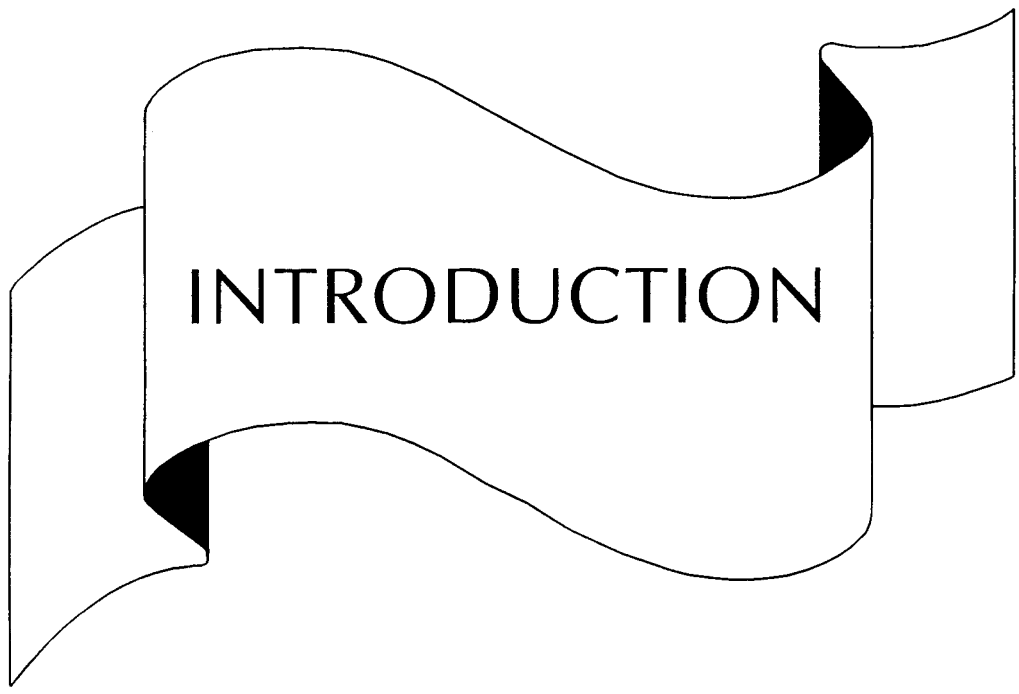
CHAPTER I

INTRODUCTION

Women constitute half of the Indian population. They are the back bone of the village economy in general. The changing role of women in rural society in India is nowhere more dramatically demonstrated than in the feminization of agriculture. According to the 1991 census, 38 per cent of cultivars and 29 per cent of all live stock and forestry workers are women. They play a significant role in the development of human society. They and their life necessarily determine the welfare of the home, family and society. Now women are moving slowly from invisibility to visibility and are being recognized as developmental partners all over the world. As per the world economic profile they form 50 per cent of the world population, contribute 60 per cent of working hours, make up 30 per cent of the official labour force and 50 per cent of the food production. Their involvement in agricultural operations is besides their usual obligation of discharging domestic work. Women's contribution to the farm sector has largely ignored and inadequately understood. They significantly contribute in all land based farm activities including animal rearing, fire wood collection etc. in addition to usual house hold chores like cooking and child rearing. The importance of women in development is being realized more and more recently.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INTRODUCTION

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"Watershed is a continuous area where its run-off water drains to a common out let". Watershed planning is now considered as the scientific method of planning for achieving maximum and sustainable returns from land by overcoming the hydrologic problems. Soil type, slope and depth of the soil, vegetative cover etc. influence the flow of water in an area. These factors are very distinct in a watershed. Therefore based on the harvestable rain water in the area and characteristics of the watershed, water budgetting can be done for each piece of land in a Watershed. The programmes of soil conservation, afforestation, minor irrigation, animal husbandry, sheep development, fisheries and other rural development activities which are undertaken on an ad-hoc basis can be integrated in to the watershed development project after studying the soil and climatic peculiarities in the watershed. This will lead to an efficient management of the land and water resources and thus result in the over all development of the area. By adoption of the programme, the percentage contribution of women, in these activities has increased substantially (Arya 1995).

The integrated watershed management programme with water resource development as an important component has initiated labour intensive cropping which has increased the employment opportunities and optimised the role of women. The programme has also helped in creating the supplementary income earning opportunities like dairying and rope making to increase gainful female employment and their bargaining power. Time has come when women must be reckoned as an important component

of the village society and must be involved directly in the process of modernisation and transfer of technology (Arya, 1995).

Scope of the study

National watershed Development Project for Rainfed Area was started in Kerala in the year 1990-91. The programme was implemented by the different development departments under the government of Kerala. There were 114 watersheds during the first phase of the programme. The fact that the success or failure of agricultural development programmes depends upon the role played by women in rural areas is being realised more and more recently. That is why it is envisaged that women must have active participation in each and every stage of planning and management of watershed development programmes and planned to include thirty per cent of women beneficiaries in the watershed development programmes.

In usual development programmes problems of women were not taken in to consideration and in the case of technologies developed or worked out, much emphasis was not given to problems at women. But in watershed development programmes steps have been taken to reduce their problems by giving financial assistance to start small scale industries and giving training on various aspects related to agriculture and allied fields. According to the Census Report 1991 the population status of women in Kerala was 50.9 per cent. Conducting a research study in this field it would

be possible to get an insight in to the role that can be played by women farmers, the constraints faced by them etc.

Hence a study of this kind is of immense necessity to further augment the watershed development programmes in a more effective way. Hence the present study was taken up with the following objectives.

i) To study the perception of farm women in planning and management of watershed programme.

ii) To assess the performance of farm women in planning and management of watershed programmes.

iii) To study the participation of farm women in planning and management of watershed development programmes.

iv) To assess their extent of adoption of watershed development programmes.

v) To identify the constraints experienced by the farm women in participation and adoption of watershed development programmes.

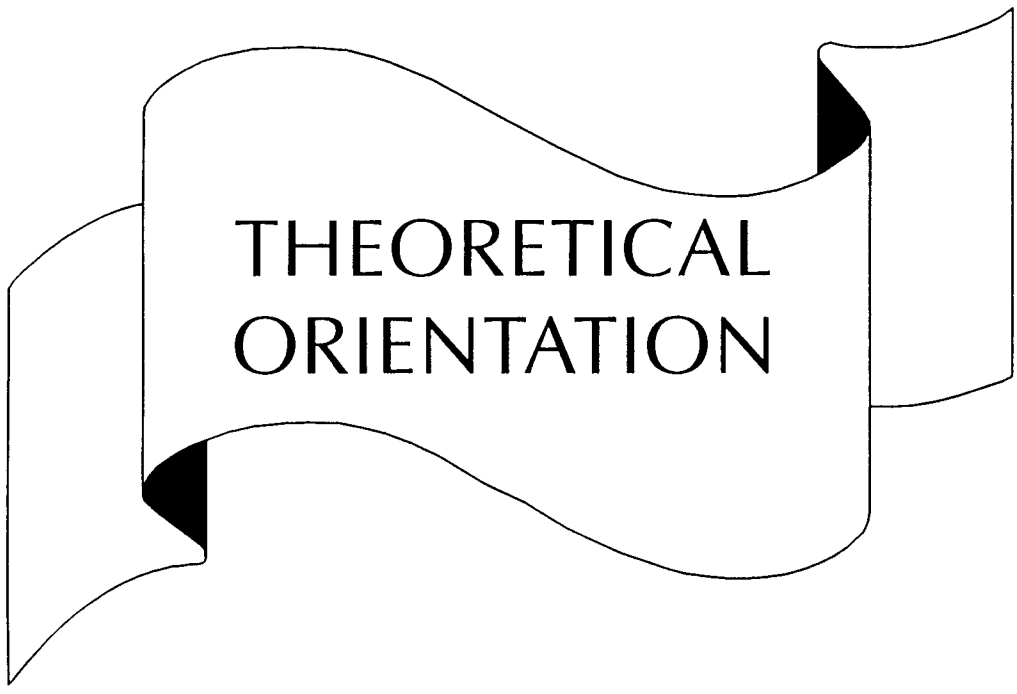
Limitations of the study

The study was confined to six watersheds of Kollam and Kottayam districts of Kerala state. Generalizations made based on the findings of

the study may have only limited application in other areas. The present study was undertaken as part of the requirement of post graduate programme of the researcher and only six out of 114 watersheds of Kerala were selected for the study. Therefore, the concepts used in the study could not be explored in greater depth and in a comprehensive manner due to constraints of time and resources.

Presentation of the study

The study is presented in six chapters. The first chapter deals with introduction. The second chapter covers review of related studies. The methods and procedures employed have been presented in the third chapter followed by results in the fourth chapter. The findings of the study are discussed in the fifth chapter. Sixth chapter gives a summary of the findings followed by references and appendices.


THEORETICAL
ORIENTATION

CHAPTER - II

THEORETICAL ORIENTATION

This chapter provides 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 formulate relevant hypotheses and evidences can be interpreted. The review of past studies has been presented under the following heads.

2.1 Concept of role perception

2.2 Concept of role performance

2.3 Role perception of farm women

2.4 Role performance of farm women

2.5 Extent of participation in planning and management of agricultural development programmes

2.6 Extent of adoption of scientific practices by farm women

2.7 Personal communication and socio-psychological variables influencing role perception, role performance, extent of participation and extent of adoption.

2.8 Constraints experienced by the farm women

2.9 Hypotheses of the study

2.1 Concept of role perception

2.1.1 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 roles 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.

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

According to Mitchell (1978) perception 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.

2.1.3 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 his 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 or 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.

2.2 Concept of role performance

2.2.1 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 determine the effort which can reasonably be expected from him.

2.2.2 Role performance

Davis (1949) defined role performance as how an 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.

2.3 Role perception of farm women

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

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

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.

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

Alex (1994) in his study he observed that the perception of female labourers as 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.

2.4. Role performance of farm women

Puri (1974) reported that all the animal related tasks were predominantly wives centered and were mostly performed by them. Women played a key role in performing various tasks related to cattle management, feeding, milking and making and selling milk products.

Devadas (1975) while investigating role of women in modern agriculture stated that in modern agriculture, women shared a number of farm operations with men. Activities like seed selection, storage, sowing behind the plough, dibbling, and planting, field irrigations, weeding, cleaning of grains, collection and storage of manure and most of the other farm operations were mainly carried out by women.

According to Mazumdar (1975) jobs traditionally done by women in most parts of the country were transplanting, sowing, weeding and harvesting.

Kebkabe (1984) in her study on role of women in agricultural production in Ethiopia reported that women constitute nearly 50 per cent of rural work force : they are directly or indirectly involved in agricultural work and their major activities focus on food production. They share responsibility with men for preparing seed beds, planting, transplanting, harvesting and marketing. As for raising vegetables women perform all the tasks except for land preparation, seed selection and scaring off birds. In coffee production both women and men engaged in repelling birds and in picking, storing and processing the cash crop.

Observations made by Mallik *et al.* (1985) found that among the various operations, female labourers were engaged mostly in seed bed preparation, transplanting and threshing.

Reddy and Prasad (1988) reported that in Meghalaya, women carry out various operations from farm jobs to marketing of produce and business. They monopolise transplanting, weeding, harvesting, storage of seeds and grains, harvesting vegetables and home gardening and play supportive role in land preparation, seed sowing, plant protection and threshing. In the work related to animal husbandry women seen to monopolise almost all operations such as feeding and watering of animals, cleaning of sheds, fodder collection and cooking grains for cattle.

Singh and Sharma (1988) found that women in the hills of Uttar Pradesh are employed in different activities of crop and livestock enterprises such as sowing, paddy transplanting, weeding, harvesting, threshing and winnowing, grass cutting, feeding and milking of animals.

A comparative analysis of women's roles in agricultural production and decision making in the households in five villages of semi-arid tropics by Mangesha (1990) indicated that women spent more time than men in activities on agricultural tasks. They also found that the amount of farm tasks performed by women did not affect the important agricultural decisions.

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.

Kumari and Nayar (1991) observed that in Kuttanad, one of the prominent rice farming tract of Kerala, operations like weeding, harvesting and processing which require maximum work force were slowly undertaken by women.

Bhople and Patki (1992) reported that the involvement of farm women in land preparation and plant protection operations was found to be less.

2.5 Extent of participation in planning and management of development programmes

Deepali (1979) concluded that participation of women was high in five operations viz., sowing, weeding, grain storage, land preparation and cleaning seeds for sowing respectively.

Savarimuthu (1981) reported that farm women participated and supervised to the extent of 75 per cent on activities related to seeds and sowing followed by others cultural practices (44.17%), on irrigation (23.30%) on plant protection (17.50%) and manuring (16.67%) in that order.

Acasio (1982) observed that factors consistently and significantly related to rural women's participation in development programmes are

education, length of involvement in development programmes, frequency of involvement in programme activities and incentives for participation, programme to be accomplished and accommodation.

Heggade (1982) stated that women's participation in economic decision making was vital means by which their economic dependency and social inequality could be removed. Their participation in decision making resulted in increasing the produce and income level of community, reducing the exploitative elements in the economic system, co-operativizing the production, marketing and distribution.

Devi and Reddy (1984) revealed that farm women of low economic category were found to participate more in farm operations where as farm women of high and medium economic categories were found to participate more in allied farm operations.

Maina (1984) observed that in Kenya, women participated in all production and marketing activities for cash crops, food crops and animal husbandry. They are also involved in making decisions related to agricultural production although the majority have little or no say in the way in which cash occurred is distributed to meet the family needs.

Patnaik and Debi (1987) observed that the participation of female labourers is higher in every field ie. farm, non farm and household than that of the males. Their contribution towards agricultural output and family income is very significant particularly in small sized holdings. Their relative share in consumption is much less than that of male labourers.

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

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 caring 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 insecticides. The farm women had low level of participation in sowing and supervision.

2.6. Extent of adoption of scientific practices by farm women

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 (1983) defined adoption as a decision to make full use of an innovation as the best course of action available, or reject it.

Nanjaiyan (1985) reported that 64 per cent of the farmers had medium level of adoption in cultivation of IR-20 paddy.

Chauhan *et al.* (1987) considered adoption as the decision to make use of the technology which has already taken up and not only initiated.

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.

Pulmate and Babu (1993) found that only 20, 13, 6.67 and 15 per cent of the respondents adopted the recommended level of urea, DAP, fungicides and insecticides respectively. Majority of them (56.67 %) used seed rate at high dose while about one fourth of them practiced preparatory tillage and applied urea more than the recommended doses.

Arya (1995) found that by the adoption of watershed programmes the percentage contribution from women as compared with men in soil conservation, afforestation minor irrigation, animal husbandry, sheep development, fisheries and other rural development activities has increased substantially.

2.7 Personal and socio psychological variables influencing role perception, role performance, extent of participation and extent of adoption

2.7.1 Age

Deepali (1979) stated 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 Koranna (1989) observed that women working in agriculture fall in the age group of 21 to 35 years.

2.7.2 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.

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

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

Srivastava and Pramila (1985) inferred that education had positive and significant correlation with adoption of improved feeding practices.

2.7.3 Farming experience

Sawer (1973) pointed out that opportunities for women to participate in farm management was influenced by their limited knowledge and farming experience.

Seema (1986) found no significant relationship of farming experience with role perception, role performance and extent of participation of farm women in decision making.

Rajkumar (1992) reported that farming experience did not have any influence on extent of adoption.

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

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

2.7.4 Annual income

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

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

Srivastava and Pramila (1985) reported that the degree of adoption of improved feeding practices was positively and significantly correlated with annual income.

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

2.7.5 Farm size

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.

Ravi (1979) and Sinha and Sinha (1980) did not find any association between farm size and adoption.

Seema (1986) reported that there was no significant relationship between size of holding and role perception, role performance and extent of participation in decision making by farm women.

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

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

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

2.7.6 Exposure to mass media

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

Balasubramanian (1985), Godhandapandi (1985), Jayapalan (1985), Wilson and Chaturvedi (1985) observed positive and significant relationship between extent of adoption and mass media participation whereas Nanjaiyan (1985) reported non significant association between mass media exposure and extent of adoption by small farmers.

Pradeepkumar (1993) reported that mass media contact is positively and significantly related with the extent of participation of educated unemployed youth in agricultural and allied fields.

2.7.7 Contact with extension agency

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

Deepali (1979) concluded that extension contact is one of the important variables which established relationship with the degree of participation of rural women in agricultural operation.

Seema (1986) reported positive and significant relationship of this characteristic with independent role performance of farm women.

Syamala (1988) reported positive and significant relationship between extension contact and extent of adoption.

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.

2.7.8 Training

Ataboug (1986) states that if women were well trained in agriculture, nutritious and health practices as well as in vocational skills good quality food and good health will be available to families, rural income will increase and development will be achieved.

Punjabi and Sadhu (1988) opined that modernization of agriculture, land reforms and other measures which are part of rural development programmes should include a study of their impact on women and provide

positive benefits to them, including training of women to adopt new technology in order to increase output.

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.

2.7.9 Cosmopoliteness

Ferreira *et al.* (1983) indicated that cosmopolite farmers were more inclined to adopt new technology.

Singh and Ray (1985) reported that personal cosmopolite of information contributed positively and significantly to the level of adoption by small farmers.

Thimmaraju (1989) reported that there was significant association between cosmopoliteness and economic performance of coconut growers in Tumkur district.

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

2.7.10 Social participation

Sharma and Singh (1970) stated that social participation is not a discriminating factor in the extent of participation of women in farm operations.

Ferreira *et al.* (1983) found that all farmers with social participation tend to adopt more of the improved farm technology.

Renukaradhya (1983) found that majority of the trained farmers were in social participation category with higher score of economic performance.

Govind (1984) reported that social participation of farm women gave significant and negative association with the extent of involvement in farm activities.

Prasannan (1987) reported a significant relationship between social participation and adoption behaviour of farmers.

Gangadharan (1993) found that social participation is positively and significantly related with the adoption of improved practices by pepper growers.

Sarmah and Singh (1994) in their study on determinants of entrepreneurship in agriculture found that social participation is significantly correlated with the level of knowledge and extent of adoption of recommended practices in rice cultivation.

2.7.11 Scientific orientation

Hobbs *et al.* (1964) noticed the positive and significant relationship between the farmers attitude towards science and their economic performance.

Balu (1980) reported that there was negative and non significant relationship between scientific orientation and adoption.

Swaminathan (1986) concluded that scientific orientation does not influence adoption by small and marginal farmers in pulse minikit demonstration.

Shilaja (1990) reported that scientific orientation has positive and significant relationship with role performance of farm women in mixed farming.

2.7.12 Economic motivation

Radhakrishnamurthy (1984) observed that economic motivation had a positive and significant correlation with extent of adoption of paddy growers.

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

Sajeevchandran (1989) and Jnanadevan (1993) found that economic motivation had positive and significant correlation with extent of adoption.

Rajkumar (1992) and Gangadharan (1993) observed that economic motivation has non significant relationship with extent of adoption.

Sivaprasad (1997) found hat economic motivation had positive and significant correlation with extent of adoption of trained youth.

2.7.13 Risk preference

Balu (1980) stated that there was negative and non significant relationship between risk orientation and adoption.

Prasannan (1987) found that risk orientation has positive but did non significant relationship with adoption of T&V messages.

Jayalakshmi (1996) found that risk taking ability was one among the major variables which contributed more in explaining the enterpreneural behaviour of trained and untrained farm women.

Varma (1996) reported that majority of the respondents (53%) belonged to high group with respect to risk orientation.

2.7.14 Achievement motivation

Hosur (1977), Janardhan (1979) and Kalavathi (1989) reported that achievement motivation was not related with job perception and performance.

Devi and Reddy (1984) reported that achievement motivation has no relation with role perception and role performance of rural women in farm activities.

Seema (1986) in her study opined that achievement motivation had no relation with role perception and role performance and extent of participation in implementating the desicions.

Shilaja (1990) reported that achievement motivation was found to have a positive and significant relationship with mixed farming productivity of farm women in progressive villages.

2.7.15 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 case of marginal farmers.

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

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

2.7.16 Attitude of Farm women towards watershed development programme

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

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

Singh and Singh (1982) in their investigation on 'Rational and adoption behaviour of farming couples' revealed that values and attitude were found significantly related with adoption behaviour of couples in respect of high yielding varieties.

Seema (1986) reported that role perception and performance of women were not significantly related with attitude towards farming.

Reddy (1987) opined that attitude towards watershed management programme was significantly associated with the productivity of dry land ragi.

Gowda (1988) found that attitude towards watershed management programme was significantly associated with the productivity of ragi crop

and he also observed attitude having no significant relationship with productivity of groundnut in the case of small and marginal farmers.

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.

2.8 Identification of constraints

Some of the closely related studies reviewed are as follows.

Kaleel (1978) while studying the impact of intensive paddy development programme reported non availability of inputs in time as the most important constraint felt by farmers.

Tripathy *et al.* (1982) while analysing the constraints in the adoption of high yielding rice technology reported that poor germination percentage 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 are the important constraints faced by the farmers.

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

Arya and Shah (1984) identified small and skewedly distributed holdings, fragmented and scattered holdings, shortage of labour, lack of availability of inputs and funds, lack of education and training were the most felt constraints by women to adopt new technology of rainfed agriculture.

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

Ramanathan *et al.* (1987) reported that high cost of cultivation, non availability of planting material in time and better performance of local varieties under poor management were acting as constraints in the adoption of high yielding cassava varieties.

Syamala (1988) found that lack of follow up, lack of need based training and inappropriate way of conducting field trials were the most felt constraints by farmer demonstrators.

Jnanadevan (1993) found that high labour cost, non availability of labourers in time, inadequate and untimely supply of seedlings, lack of adequate financial assistance and subsidies were the most felt constraints by coconut growers.

2.9 Hypotheses of the study

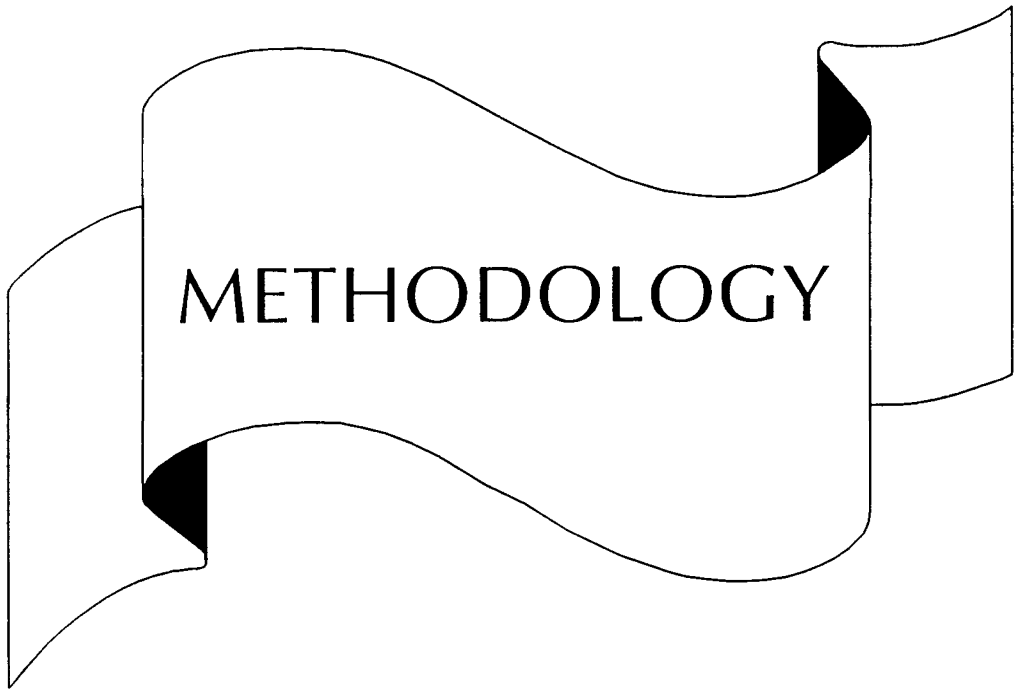
Keeping in view the objectives of the study and the review of literature, the following hypotheses were framed for empirical validation in the present study.

i) There is no significant difference between selected personal, communication and socio psychological variables and role perception.

ii) There is no significant difference between selected characteristics and role performance.

iii) There is no significant difference between selected characteristics and extent of participation.

iv) There is no significant difference between selected characteristics and extent of adoption.


METHODOLOGY

CHAPTER III

METHODOLOGY

This chapter deals with the methodology employed in this study, which are presented under the following subheadings.

3.1 Locale of the study

3.2 Sampling of respondents

3.3 Measurement of variables

3.4 Identification of constraints

3.5 Categorisation of respondents

3.6 Data collection procedure

3.7 Statistical tools used in the study

3.1 Locale of the study

This study was confined to Kollam and Kottayam districts in Kerala state having highest area under watershed programme. From each of the

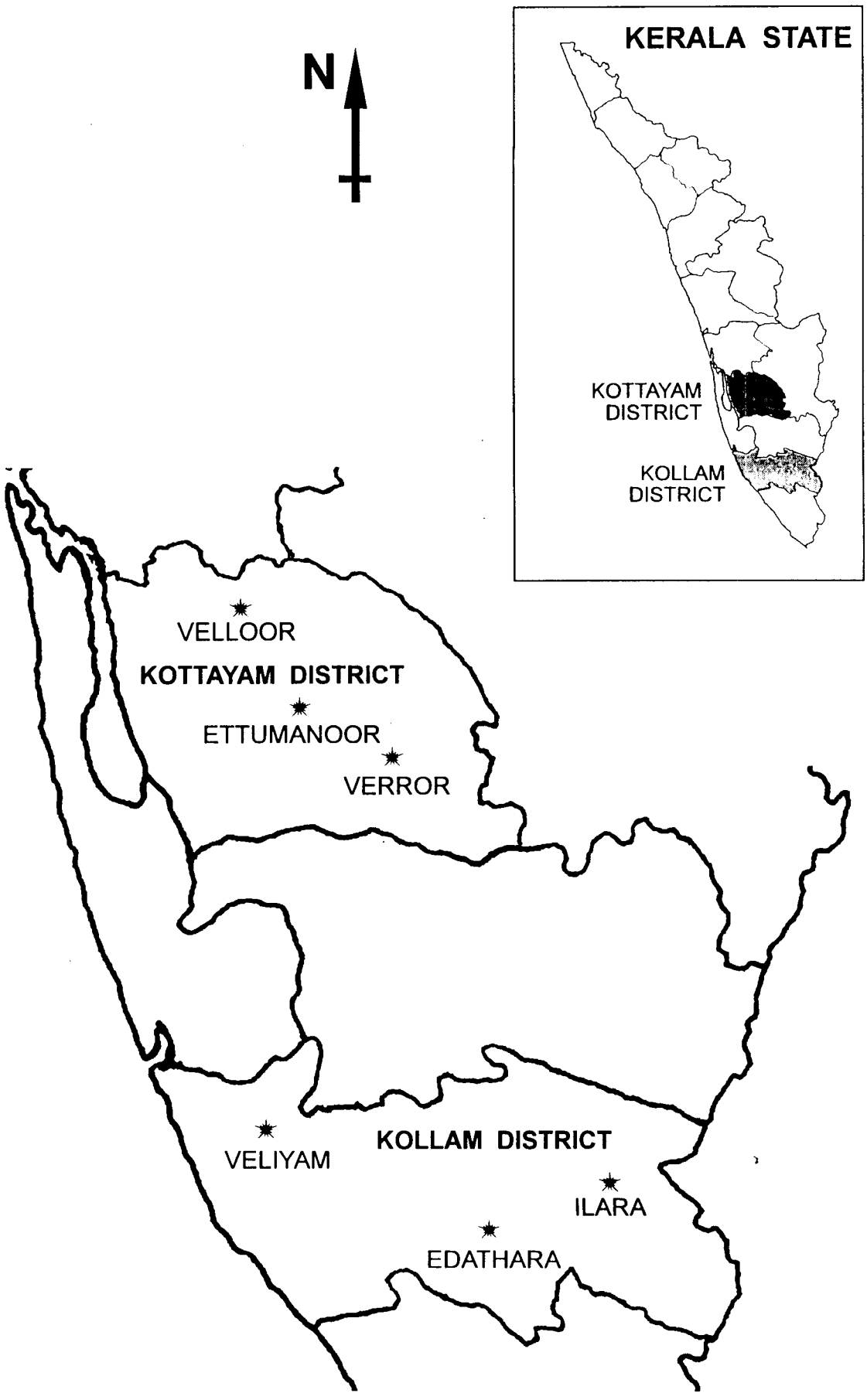


Fig. 2. Map showing the location of the study

selected districts three watersheds were selected through random sampling technique and they are as follows.

Name of districts	Water sheds
Kollam	Veliyam Ilara Edathara
Kottayam	Verror Velloor Ettumanoor

3.2 Sampling of respondents

The basic unit of data collection for this study was the six watersheds. List of farm women from each watershed under the study area was obtained from the concerned 'Krishi Bhavans' located in each watershed, 30 farm women each were selected randomly from each watershed, thus forming a total sample of 180 respondents.

3.3 Measurement of variables

3.3.1 Measurement of dependent variables

As per the objectives of the study the role perception and role performance of farm women in planning and management of watersheds,

extent of participation in watershed programmes and extent of adoption of watershed development programmes are the dependent variables of the study. The measurement procedures followed are detailed below.

3.3.1.1 Role perception

Role perception is operationally defined as thinking and feeling of farm women about the degree of importance they attach to each role item in the planning and management of watershed.

An item pool of roles which farm women can perform in watershed planning and management was prepared by reviewing literature and finally discussing with experienced personnel associated with the watershed development programmes.

The relevancy of the items listed was judged by rating the items using 30 judges from the Department of Agricultural Extension of Kerala Agricultural University and Department of Agriculture. The items were presented to the judges for rating on a four point continuum namely 'very much relevant', 'much relevant', 'somewhat relevant' and 'not relevant. Those role items having relevancy coefficient value 70 and above were selected. Thus a total of 22 items under agriculture and 16 items under animal husbandary were selected (Appendix III).

The selected role items were given to the respondents to indicate their responses in a three point continuum namely 'very important',

'important' and 'less important' carrying weightage '3', '2' and '1' respectively. Role perception score of an individual respondent is obtained by adding the weightage on her responses over all the items.

In order to know which role is perceived as most important by the respondents frequency and percentage of the respondents, rating each role / item as most important were worked out and the roles were ranked accordingly.

3.3.1.2 Role performance

Role performance is operationalised as the degree of regularity with which each role is performed by a farm woman as reported by her.

The role items identified were given to the farm women and responses were collected in a three point continuum namely 'most frequently', frequently' and 'rarely' carrying weightage '3', '2' and '1' respectively. Role performance score of an individual respondent is obtained by adding the weightage on her responses over all the items.

In order to know which role is performed most frequently by the respondents frequency and percentage of the respondents, performing each role / item as most frequently were worked out and the roles were ranked accordingly.

3.3.1.3. Extent of participation

This is defined as the extent of actual involvement, both mental and physical, of farm women in planning and management of watershed programmes.

In this study 10 major areas were peoples involvement is expected were identified. The respondents were asked to indicate in a three point continuum, how often they involve in these activities. The scoring pattern followed were as follows.

Responses category	Score
Always	3
Sometimes	2
Never	1

The score of a single respondent on extent of participation is calculated by summing up the score over the '10' items.

To have an idea about the item war extent of participation, frequency and percentage of respondents participating in each item 'always', 'sometimes' and 'never' were worked out.

3.3.1.4 Extent of adoption

Adoption behaviour was operationalised as the extent to which the recommended programmes are put in to practice in the watershed by farm women.

In this study common programmes recommended for the selected watersheds were identified (Appendix III) and the extent of adoption of these programmes were calculated using adoption quotient developed by Chattopadhyay (1963) and modified by Singh and Singh (1970).

Accordingly adoption quotient of each respondent was calculated using the formula.

$$\frac{\Sigma E/p}{N} \times 100$$

where

Σ = the summation

E = extent of adoption of each practice

P = Potentiality of adoption of each practice

N = total number of practices that can be adopted by the respondent

To know the extent of adoption programme wise the respondents were categoriesed as full adopters, partial adopters and non adopters on each programme based on their adoption score on each item.

3.3.2 Measurement of independent variables

Based on the objectives, review of literature, discussions with experts and observation made by the researcher a list of 32 independent

variables was formed along with their operational definitions and sent to 30 experts for judging their relevancy in a three point continuum ranging from 'most relevant' to 'least relevant. The judges were drawn from the field of Agricultural Extension of Kerala Agricultural University, Central Tuber Crop Research Institute and Department of Agriculture. The scores assigned to different response categories were as follows.

Responses category	Score
Most relevant	2
Relevant	1
Least relevant	0

The percentage score obtained for each variable was worked out and those variables having score of 65 per cent and above were selected.

The variables thus selected were :

1. Age
2. Education
3. Farming experience
4. Annual income
5. Farm size
6. Exposure to mass media

7. Contact with extension agency
8. Training
9. Cosmopoliteness
10. Social participation
11. Scientific orientation
12. Economic motivation
13. Risk preference
14. Achievement motivation
15. Innovationproneness
16. Attitude of farmers towards watershed development programme

3.3.2.1 Age

In the present study, age is defined as the number of calendar years completed by the farm women at the time of interview.

This was measured by asking the respondent the number of years she has completed at the time of investigation.

The categorisation is as follows :

Category	Age group (years)
Young	below 35
Middle	35 to 44
Old	above 44

3.3.2.2 Educational status of the respondent

It is defined as the level of formal education attained by the respondent. This was measured using the procedure followed by Trivedi (1963).

The scoring was done as follows :

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

3.3.2.3 Farming experience

It is operationally defined as the number of years passed since the respondent get actively involved in farming

In the present study, farming experience of the respondent expressed in complete years was taken as such for the measurement of this variable.

3.3.2.4 Annual income

Annual income is defined as the total earnings of the family for one year. This was obtained by adding the income earned by all adult members of the family and income from land for one year.

3.3.2.5 Farm size

In the present study, farm size refers to the total land owned by the rural women.

This variable was measured by directly asking the respondents the total land possessed by them. Then scores were assigned to each respondent based on the area possessed, as detailed below.

Farm size (cent)	Score
1 - 10	1
11 - 20	2
21 - 40	3
40 - 50	4
above 50	5

3.3.2.6 Exposure to mass media

This refers to the extent to which a respondent is exposed to different mass media communication such as radio, television, printmedia, etc. (Appendix III).

The procedure used by Fathimabi (1993) was adopted in this study with slight modification for the quatification of this variable.

The scoring was done as follows :

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

The total score of the respondent was obtained by adding the scores one got on all the mass media sources of information.

3.3.2.7 Contact with extension agency

In this study, scoring technique followed by Jaiswal *et al.* (1971) was used with slight modification for measuring farm women's contact with

extension agencies. The measurement was based on the frequency with which respondents meet various extension agencies viz., Agricultural Assistant, Agricultural Officer, Agricultural Scientist, Dairy Extension Officer and others (Appendix III). Respondents were asked to indicate the frequency of contact and scores were assigned as given below.

Frequency of contact	Scores
Once a week	4
Once in a month	3
Occasionally	2
Never	1

The scores obtained by an individual for each extension agency were added to get her total score on contact with extension agency.

3.3.2.8. Training

Training is operationally defined as the type, number and duration of training received by a farm women related to agriculture for the past two to three years.

This was quantified using the scale developed by Sheela (1989) with slight modification. A schedule was developed with respect to trainings undergone in any aspect of agriculture (Appendix III).

For subject matter training a score of one was given and for skill training a score of two was given. Depending on the duration of training the following scores were assigned.

Duration (days)	Score
One day	1
2 to 5	2
above 5	3

Then total score of an individual on this variable was calculated by summing the product of weightage for the type of training, number of training and weightage for duration of the training.

3.3.2.9 Cosmopoliteness

Cosmopoliteness is operationalised as the degree to which a farm woman is oriented to her immediate outside social system.

In this study the respondents were asked whether they have visited the neighbouring village. The responses 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 used.

Frequency of visit	Score
Most frequently	3
Frequently	2
Sometimes	1

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

3.3.2.10 Social participation

It refers the degree of involvement of a farm women in social organisation as a member or as an office bearer attending the activities.

The procedure developed by Lokhande (1974) was used with slight modification for the purpose of measurement of social participation.

The scoring was done as follows :

Item	Score
No membership	0
Membership in each organisation	1
Office bearer in each organisation	2

Individuals score was calculated by multiplying the weightages with number of organisations in which she is a member or office bearer and adding the products.

3.3.2.11 Scientific orientation

In the present study scientific orientation refers to the degree to which a farm woman is oriented to the use of scientific methods in farming.

It was measured with the help of a scale developed by Supe (1969). Of the six statements in the scale, the second statement alone is negative. Instead of five point continuum of response as used by Supe in this study responses were collected in a '3' point continuum as shown below.

Points in the continuum	Score	
	Positive	Negative
Agree	3	1
Undecided	2	2
Disagree	1	3

The aggregate score for each respondent was obtained by adding up the score obtained on each statement. The maximum score obtained by a respondent was 18 and minimum '6'. The statements included are provided in (Appendix III).

3.3.2.12 Economic motivation

Economic motivation refers to the occupational excellence in terms of profit making and relative value placed on economic ends by a farm woman. This dimension was measured by using the economic motivation scale developed by Supe (1969) and adopted by Gangadharan (1993). The scale consists of six statements (Appendix III). The responses were collected on a five point continuum as follows.

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

The scores obtained on each statement were summed up to arrive at the individuals score on economic motivation. The possible score ranged from 6 to 30.

3.3.2.13 Risk preference

Risk preference is operationally defined as the degree to which a farm woman is oriented towards risk and has courage to face problems in farming.

This variable was measured using the scale developed by Supe (1969). The scale consists of six statements of which one statement is negative (Appendix III). The responses were rated on a five point continuum as follows.

Response	Score
Strongly agree	7
Agree	5
Undecided	4
Disagree	3
Strongly disagree	1

The scoring was reversed in the case of negative statement. The scores obtained on each statement were summed up to arrive at the individuals total score on risk preference. The possible score range on this scale is 6 to 42.

3.3.2.14 Achievement motivation

Achievement motivation refers to the desire for excellence of a farm woman to attain a sense of personal accomplishment.

Achievement motivation was measured using the scale developed by Singh (1970) and modified by Manohari (1988). The scale consists of

seven statements (Appendix III). The responses were collected on a five point continuum and scored as follows.

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

Total score of a respondent on this variable was worked out by summing up the scores on all the items. The possible score ranges between 7-35.

3.3.2.15 Innovation proneness

Innovation proneness refers to the behavioural pattern of an individual farm woman who has interest and desire to seek new changes in farming techniques and to introduce such changes in to her farm operations if practical and feasible.

This variable was quantified by using the forced choice method of self rating deviced by Moulik and Rao (1965). The scale consists of '3' set of statements (Appendix III). Each set containing three separate

statements with weightage '3', '2' and '1' indicating higher, medium and low degree of innovation proneness respectively. After obtaining the most to least choice for each of the three sets of statements, the scoring was done by summing up the ratios of the weight of the most liked statement to the weight of the least liked.

3.3.2.16 Attitude towards wartershed development programmes

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

In the present study, attitude towards watershed development programme is the degree of favourable or unfavourableness possed by a farm woman towards the watershed development programmes in general.

Based on the review of literature and discussion with experts 23 statements reflecting attitude of farm women towards watershed development programme were developed and edited by using the criteria suggested by Edwards and Kilpariçks (1948). These statements were administered to 100 respondents in a purposively selected watershed in a non sample area in Kollam district. The responses were collected on a five point continuum viz., 'strongly agree', 'agree', 'undecided', 'disagree' and 'strongly disagree'.

After obtaining the responses from the 100 repondents the scoring was done in the order of '4', '3', '2', '1' and '0' for 'strongly agree', 'agree', 'undecided', 'disagree' and 'strongly disagree' in the case of positive statements and vice versa in the case of negative statements. By summing up the scores over all the statement in the scale, the total score for each of the resondents were obtained.

Considering the attitude score they were arranged in the descending order. Twenty five per cent of the subjects with the high score and 25 per cent of the subject with the low score were used for the selection of items for the final scale. For each statement discrimination index was worked out by computing 't' value as suggested by Edwards (1957) as shown below.

$$t = \frac{X_H - X_L}{\sqrt{\frac{SH^2}{n_H} + \frac{SL^2}{n_L}}}$$

where

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

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

SH^2 - the variance of the distribution of the high group to the statement

SL^2 - the variance of the distribution of responses of the low group

n_H - the number of subjects in the high group

n_L - the number of subjects in the low group

Thus the 't' value for all the 23 statements were worked out (Appendix II) and those statements with 't' value greater than 1.75 were selected so as to have equal number of positive and negative statements. Thus 10 statements were included in the final scale. The scale is tested for its reliability and validity.

Reliability of the scale

A scale is said to be reliable when it produces results with high degree of consistancy when administered to the same respondents with a time interval.

In this study, the reliability of the scale was determined by test-retest method. The scale was administered to 30 non sample respondents of the study area at 15 days interval. The two sets of score obtained were correlated. The coefficient of correlation (r) between the two scores was found to be (0.826) high significant. Hence it was concluded that the scale was reliable.

Validity of the scale

To ensure whether the obtained test score measures, the variable it is supposed to do, validity of the scale has to be tested. Content validity and or construct validity are generally tested.

Content validity according to Kerlinger (1973) is the representativeness or sampling adequacy of the contents, the substance, the matter and the topics of a measuring instrument. He further stated that content validation consists essentially in judgements. Alone or with others, one judges the representativeness of the item.

Content validity of the present attitude scale was established in two ways, first the items selected for inclusion in scale were based on extensive review of literature. Secondly the relevancy of the items to be included in the scale was judged by a pannel of judges and only those items which were judged relevant by more than 70 per cent of judges were selected. Naturally the scale will be a valid one.

3.4 Identification of constraints

One of the objective of the study was to identify the constraints experienced by the rural women in participation and adoption of watershed programmes.

In the present study constraint is operationalised as difficulties or problems experienced or by a rural woman in participation and adoption of watershed programmes.

After discussion with a cross section of rural women in different parts of Kollam and Kottayam districts and based on the experience and observations of the researcher, 18 problems were listed. The farm women

were asked to state whether the items given are applicable to them as a problem or not by marking 'yes' or 'no' against each item provided. They were also asked to add any more items that were not included in the list. Those items with 'yes' responses were given a score '1' and 'no' were given '0'. The items were ranked based on the frequency of 'yes' response obtained for each constraint.

3.5 Categorisation of respondents

For most of the variables except, a few the respondents were classified in to high and low group taking mean as criteria.

Low group — below mean - S.D

High group — above mean + S.D

Variables like farming experience, exposure to mass media, contact with extension agency, cosmopoliteness, social participation, scientific orientation, economic motivation, risk preference, achievement motivation, innovation proneness, attitude, role perception, role performance, extent of participation and extent of adoption were categoriesed as mentioned above.

In case of age, educational status, annual income, farm size and training were classified as follows.

1. Age

Category	Age group
Young	below 34
Middle	35 to 44
Old	above 45

2. Educational status

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

3. Annual income

Category	Score
Below 11000	0
11000 - 20000	1
20001 - 30000	2
30001 - 50000	3
40001 - 50000	4
above 50000	5

Contd...

4. Farm size

Category	Score
1 - 10	1
11 - 20	2
21 - 40	3
40 - 50	4
above 50	5

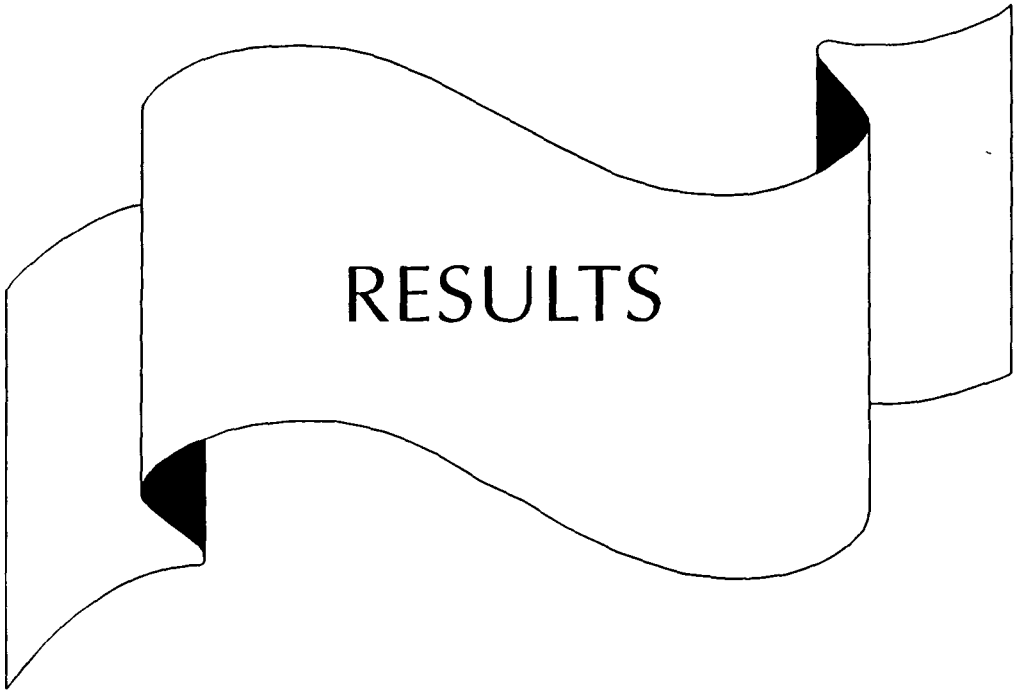
5. Training

Duration	Score
One day	1
2 to 5	2
above 5	3

3.6 Data collection procedure

An interview schedule including all aspects mentioned above was prepared in English (Appendix III) and translated to Malayalam for collecting data from the respondents.

The schedule was pre tested for its clarity by using 50 respondents from a non sample area.


RESULTS

CHAPTER IV

RESULTS

The results of the study are presented under the following subheads

4.1 Characteristics profile of farm women

4.2 Importance of roles as perceived by farm women in planning and management of watershed

4.3 Role performance of farm women in planning and management of watershed

4.4 Extent of participation of farm women in planning and management of watershed programmes

4.5 Extent of adoption of watershed programmes

4.6 Inter correlation between the role perception, role performance, extent of participation and extent of adoption

4.7 Relationship between dependent variables and selected characteristics

4.8 Constraints experienced by the farm women

4.1 Characteristic profile of farm women

4.1.1 Mean, standard deviation and coefficient of variation of the variables under study

Table 1 reveals that the dependent variables like extent of participation (24.52%) having high coefficient of variation, followed by extent of adoption (20.69%) role performance (16.72%) and role perception (15.35%) in descending order. Here extent of participation and extent of adoption shows high coefficient of variation than role performance and role perception. High coefficient of variation shows poor consistency with regard to these variables. But the variables like role perception and performance indicating high consistency in the sample under study relatively high mean value was found in extent of adoption.

As evidence from the table high coefficient of variation was observed in respect of the following independent variables like training (218.20%) in the first position, followed by social participation (79.23%), farm size (64.08%), exposure to mass media (46.25%), farming experience (40.50%), education (36.15%), innovation proneness (32.69%) and contact with extension agency (25.20%) in the descending order. High coefficient of variation shows poor consistency with regard to those variables. Rest of the variables did not show much variation in the sample under study, indication relatively high consistency in the sample distribution with respect to these characteristic.

Table 1. Mean, standard deviation and coefficient of variation of the variables under study

Sl. No.	Variables	Range	Mean	S.D.	Coefficient of variance (%)
	Dependent variables				
1.	Role perception	54-110	78.19	12.00	15.35
2.	Role performance	48-107	74.65	12.48	16.72
3.	Extent of participation	10-24	13.13	3.22	24.52
4.	Extent of adoption	36.8-91.6	64.92	13.43	20.69
	Independent variables				
1.	Age	24-70	45.83	9.66	21.00
2.	Education	0-6	3.90	1.41	36.15
3.	Farming experience (yrs)	1-35	13.80	5.59	40.50
4.	Annual income (Rs.)	15000-72000	36789	3.04	0.008
5.	Farm size (cents)	10-160	37.70	24.16	64.08
6.	Exposure to mass media	2-14	7.07	3.27	46.25
7.	Contact with extension agency	4-12	7.42	1.89	25.20
8.	Training	0-10	0.52	1.14	218.20
9.	Cosmopoliteness	3-6	4.65	0.677	14.55
10.	Social participation	1-10	2.89	2.29	79.23
11.	Scientific orientation	7-16	12.50	2.64	21.12
12.	Economic motivation	14-26	20.44	3.06	14.97
13.	Risk preference	15-33	25.05	4.08	16.28
14.	Achievement motivation	16-31	23.13	3.13	16.12
15.	Innovation proneness	1.5-7.5	4.19	1.37	32.69
16.	Attitude towards watershed programmes	15.33	26.46	4.16	15.72

Relatively high mean values were observed in characteristics such as economic motivation, scientific orientation and risk preference.

4.1.2 Distribution of resondents on the basis of dependent variables

4.1.2.1 Role perception

The mean score on role perception was found to be 78.19. From the table it could be observed that majority of the respondents (63%) belonged to low group with respect to their role perception and the remaining 37 per cent had high role perception.

4.1.2.2 Role performance

From table 2 it could be observed that the majority of the respondents (63%) were having role performance scores below the mean score of 74.65

4.1.2.3 Extent of participation

As high as 72 per cent of the respondents were found to have very low participation in planning and management of watershed and the remaining 28 per cent of them had high participation.

4.1.2.4 Extent of participation

From table 2 it could be observed that 53 per cent of the respondents had high level of adoption of watershed programmes.

Table 2. Distribution of respondents on the basis of dependent variabels

n = 180

Variables	Category	Score range	Frequency	Percentage
1. Role perception	Low	< 78.19	114	63
	High	≥ 78.19	66	37
2. Role performance	Low	< 74.65	114	63
	High	≥ 74.65	66	37
3. Extent of participation	Low	< 13.13	129	72
	High	≥ 13.13	51	28
4. Extent of Adoption	Low	< 64.97	84	47
	High	≥ 64.97	96	53

The remaining 47 per cent of respondents were having adoption score below the mean score of 64.97.

4.1.3 Distribution of respondents on the basis of socio-psychological variables

4.1.3.1 Age

From table 3 it could be observed that 59 per cent of the respondents are in old age (> 45) group. Thirty two per cent of the respondents are in middle age (35-44) group and only nine per cent belonged to young age (< 34) group.

4.1.3.2 Educational status

With respect to educational status it was found that about 27 per cent of the respondents had primary school education. The respondents got middle school education was 25 per cent about 23 per cent of the farm women had high school education. Only thirteen per cent of the respondents were having education at college level and four per cent belonged the category of those who can read and write. The percentage of illiterate was as low as three per cent.

4.1.3.3 Farming experience

More than half of the sample respondents (51%) belonged to the low group having less than 14 years of farming experience. The remaining 49 per cent belonged to the high group with farming experience of 14 years and more.

4.1.3.4 Annual income

From table 3 it could be revealed that 43 per cent of the respondents were having annual income from Rs. 30001 to 40000. As much as 33 per cent of them belonged to the income group of Rs. 40001 to 50000; whereas for 14 per cent of the farm women were having their annual income within the rage of Rs. 20001 to 30000. It was found that eight per cent of the respondents belonged to category above Rs. 50001. Only two per cent were in the income group below Rs. 20000 per annum.

Table 3. Distribution of respondents on the basis of personal, communication and socio-psychological variables

n = 180

Variables	Category	Score range	Frequency	Percentage
1. Age (years)	Young	< 34	17	09.00
	Middle	35-44	57	32.00
	Old	> 45	106	59.00
2. Educational status of the respondent	Illiterate	0	6	03.0
	Can read only	1	6	03.0
	Can ready and write	2	7	04.0
	Primary school	3	49	27.0
	Middle school	4	47	26.0
	High school	5	42	23.0
	College and above	6	23	13.0
3. Farming experience (years)	Low	< 14	92	51.0
	High	≥ 14	88	49.0
4. Annual income (Rs.)	< 20000	1	4	02.0
	20001-30000	2	25	14.0
	30001-40000	3	78	43.0
	40001-50000	4	58	33.0
	> 50001	5	15	8.0
5. Farm size (cents)	1-10	1	0	00.0
	11-20	2	29	16.0
	21-40	3	85	47.0
	45-50	4	29	16.0
	> 50	5	37	21.0
6. Exposure to mass media	Low	< 7.08	108	60.0
	High	≥ 7.08	72	40.0

Contd...

(Table 3. Contd...)

Variables	Category	Score range	Frequency	Percentage
7. Contact with extension agency	Low	< 7.42	111	62.0
	High	≥ 7.42	69	38.0
8. Training	0	1	126	70.0
	1-3	2	46	26
	4-6	3	07	4
	> 6	4	0	0
9. Cosmopoliteness	Low	< 4.65	81	45.0
	High	≥ 4.65	99	55.0
10. Social participation	Low	< 3	121	67.0
	High	≥ 3	59	33.0
11. Scientific orientation	Low	< 12.51	95	53.0
	High	≥ 12.51	85	47.0
12. Economic motivation	Low	< 20.44	90	50.0
	High	≥ 20.44	90	50.0
13. Risk preference	Low	< 25.50	84	47.0
	High	≥ 25.50	96	53.0
14. Achievement motivation	Low	< 23.13	94	52.0
	High	≥ 23.13	86	48.0
15. Innovation proneness	Low	< 4.2	82	46.0
	High	≥ 4.2	98	54.0
16. Attitude towards watershed programme	Low	< 26.47	73	41.0
	High	≥ 26.47	107	59.0

4.1.3.5 Farm size

A higher proportion of the respondents (47%) possessed land holdings range between 21 and 40 cents. The respondents who has farm size above 50 cents were only 21 per cent. the percentage of respondents belonged to the group of 41 to 50 cents and 11 to 20 cents were 16 per cent each. There were no respondents having farm size below 10 cents.

4.1.3.6 Exposure to mass media

As evident from table 3, 60 per cent of the respondents were found to be in lower category having score below the mean (7.08) and the rest 40 per cent were in the higher category.

4.1.3.7 Contact with extension agency

The mean score obtained was 7.42 more than half of the respondents 62 per cent had low extension agency contact and the remaining 38 per cent had high extension agency contact.

4.1.3.8 Training

It is interesting to note that 70 per cent of the respondents did not get any type of training. Twenty six per cent had got score ranging from 1 to 3 and only four per cent of farm women had received training score between 4 and 6.

4.1.3.9 Cosmopoliteness

It could be seen from table 3, 55 per cent of the respondents had high cosmopoliteness and the remaining 45 per cent had low cosmopoliteness. The mean score obtained was 4.65.

4.1.3.10 Social participation

With respect to social participation majority of the respondents (67%) belonged to the low group with scores below the mean score of three and 33 per cent belonged to the higher group.

4.1.3.11 Scientific orientation

A good percentage of the respondents (53%) was found to be having very low scientific orientation. Only 47 per cent had scientific orientation scores above the mean score (12.51).

4.1.3.12 Economic motivation

The mean score on economic motivation obtained was 20.44. From the table it could be observed that the respondents were equally distributed in high and low groups with respect to this variable.

4.1.3.13 Risk preference

From table 3 it was clear that majority of the respondents (53%) belonged to the high group with respect to risk preference and the remaining

47 per cent of the respondents were observed to have scores lower than the mean score of 25.5.

4.1.3.14 Achievement motivation

As evidenced from Table 3 the mean score on achievement motivation was found to be 23.13. More than half of the respondents (52%) had achievement motivation below mean and remaining 48 per cent had achievement motivation above mean value.

4.1.3.15 Innovation proneness

Table 3 reveals that majority of the respondents (54%) belonged to the high group with respect to innovation proneness. The remaining 46 per cent of farm women were found to fall in low group.

4.1.3.16 Attitude towards watershed programme

A good per cent of the respondents (53%) was found to be having very favourable attitude towards watershed development programme as revealed by the scores higher than the mean where as 47 per cent of them had attitude score lowest than the mean value.

4.2 Importance of roles as perceived by farm women in planning and management of watersheds

The roles identified in their perceived importance in terms of frequency are presented under two sub heads agriculture and animal husbandry in Table 4.

Table 4. Importance of roles as perceived by farm women in planning and management of watersheds

n = 180

	Very important	Important	Less important
Agriculture			
1. Selecting the crops	32 (18)	90 (50)	58 (32)
2. Deciding the varieties to be grown	20 (11)	93 (52)	67 (37)
3. Deciding the cropping pattern to be adopted	26 (14)	50 (28)	104 (58)
4. Deciding the conservation measures to be adopted	17 (9)	43 (24)	120 (67)
5. Collecting planting materials	28 (16)	102 (57)	50 (58)
6. Transporting the seedlings	30 (17)	53 (29)	97 (54)
7. Preparation of land for planting the seedlings	30 (17)	100 (55)	50 (28)
8. Taking pit	40 (22)	100 (55)	40 (22)
9. Planting the seedlings	98 (54)	60 (33)	22 (12)
10. Manuring	31 (17)	104 (58)	45 (25)
11. Watering	105 (58)	40 (22)	35 (19)
12. Pruning	30 (17)	50 (28)	100 (55)

Contd...

(Table 4. Contd...)

		Very important	Important	Less important
13.	Weeding	93 (52)	62 (34)	25 (14)
14.	Thinning and gap filling	50 (28)	110 (61)	20 (11)
15.	Plant protection	90 (50)	70 (39)	20 (11)
16.	Supervision of hired labour in the field	120 (67)	47 (26)	13 (7)
17.	Harvesting	123 (68)	30 (16)	27 (15)
18.	Processing	110 (61)	40 (22)	30 (17)
19.	Marketing	50 (28)	115 (64)	15 (8)
20.	Contour banding	20 (11)	30 (16)	130 (72)
21.	Terracing	18 (10)	37 (21)	125 (69)
22.	Planting grass on bunds	30 (16)	40 (22)	110 (61)
Animal Husbandry				
23.	Deciding types breeds to be maintained	70 (39)	96 (53)	14 (8)
24.	Number of animals to be maintained	97 (54)	60 (33)	23 (22)
25.	Type of feed to be given	80 (44)	60 (33)	40 (22)

Contd...

(Table 4. Contd...)

		Very important	Important	Less important
26.	Type of shed to be constructed	63 (35)	93 (52)	24 (13)
27.	Whether to inseminate the animals or not	23 (13)	50 (28)	107 (59)
28.	How and where to market the produce	37 (21)	90 (50)	53 (29)
29.	Maintenance of cattle shed	41 (24)	91 (51)	45 (25)
30.	Feeding animals	97 (54)	50 (28)	33 (18)
31.	Care of sick animals	130 (72)	35 (19)	15 (8)
32.	Inseminating the animals	40 (22)	40 (22)	100 (55)
33.	Cultivating fodder	40 (22)	80 (44)	60 (33)
34.	Collecting fodder			
35.	Milking animals	50 (28)	100 (55)	30 (17)
36.	Management and care of poultry birds	132 (73)	33 (18)	15 (8)
37.	Goat rearing	93 (52)	47 (26)	40 (22)
38.	Selling of livestock produce	24 (24)	96 (53)	40 (22)

(Figures in bracket indicate the percentage)

The data indicates the extent to which the identified roles were being perceived by the farm women.

Agriculture

With regard to roles related to agriculture data presented in the table revealed that majority of the farm women perceived the roles like planting seedling (54%), watering (58%), weeding (52%), plant protection (50%), supervision of hired labours in the field (67%), harvesting (68%) and processing as very important. More than 50 per cent of the farm women in this category perceived the roles like collecting planting materials (57%), taking pit (55%), manuring (58%), thinning and gap filling (61%), marketing (64%), selecting the crops (50%), deciding the varieties to be grown (52%) as important. More than 50 per cent of the respondents perceived the roles like deciding the cropping pattern to be adopted (58%), deciding the conservation measures to be adopted (67%), pruning (55%), contour bunding (72%), terracing (69%) and planting grass on bunds (61%) as less important.

Animal husbandry

With respect to roles identified under animal husbandry majority of the respondents perceived the roles like number of animals to be maintained (54%), feeding animals (54%), care of sick animals (72%), management and care of poultry birds (73%) and goat rearing (52%) as

'very important'. More than 50 per cent of the farm women in this category perceived the roles like maintenance of cattle shed (51%), milking of animals (55%) selling of livestock produce (53%) deciding type of breeds to be maintained (53%), type of shed to be constructed (52%) and how and where to market the produce (50%) as 'important'. They perceived the roles like whether to inseminate the animals or not (59%) and inseminating the animals (55%) as 'less important'.

4.3 Role performance of farm women in planning and management of watershed programmes

Table 5 indicates the extent to which the identified roles in agriculture and animal husbandry were performed by the farm women.

Agriculture

With regard to roles in agriculture data presented in the table revealed that majority of the farm women 'most frequently' performed the roles like planting the seedlings (58%), watering (58%), weeding (55%), supervision of hired labourers in the field (67%), harvesting (69%) and processing 64%). More than 50 per cent at the farm women in this category'frequently' performed the roles like selecting the crops (50%) deciding the varieties to be grown (50%), collecting the planting materials 56%), thinning and gap filling (55%) and marketing (52%).

Table 5. Role performance of farm women in planning and management of watershed

n = 180

	Most frequently	Frequently	Rarely
Agriculture			
1. Selecting the crops	40 (22)	90 (50)	50 (28)
2. Deciding the varieties to be grown	25 (14)	90 (50)	65 (36)
3. Deciding the cropping pattern to be adopted	25 (14)	50 (28)	105 (58)
4. Deciding the conservation measures to be adopted	17 (9.4)	43 (24)	120 (67)
5. Collecting planting materials	35 (19)	100 (56)	45 (25)
6. Transporting the seedlings	30 (17)	53 (29)	97 (54)
7. Preparation of land for planting the seedlings	40 (22)	37 (20.5)	103 (57)
8. Taking pit	50 (28)	100 (55)	30 (17)
9. Planting the seedlings	104 (58)	58 (32)	18 (10)
10. Manuring	40 (22)	98 (54)	42 (23)
11. Watering	105 (58)	45 (25)	30 (17)
12. Pruning	30 (17)	50 (28)	100 (55)

Contd...

(Table 5. Contd...)

		Most frequently	Frequently	Rarely
13.	Weeding	100 (55)	60 (34)	20 (11)
14.	Thinning and gap filling	60 (33)	100 (55)	20 (11)
15.	Plant protection	30 (17)	50 (28)	100 (55)
16.	Supervision of hired labour in the field	120 (67)	47 (26)	13 (7)
17.	Harvesting	125 (69)	30 (17)	25 (14)
18.	Processing	115 (64)	40 (22)	25 (14)
19.	Marketing	67 (37)	93 (52)	20 (11)
20.	Contour banding	20 (11)	28 (16)	132 (73)
21.	Terracing	18 (10)	35 (19)	127 (71)
22.	Planting grass on bunds	25 (14)	40 (22)	115 (64)
Animal Husbandry				
23.	Deciding types breeds to be maintained	70 (39)	96 (53)	14 (8)
24.	Number of animals to be maintained	95 (53)	60 (33)	25 (14)
25.	Type of feed to be given	85 (47)	60 (33)	45 (25)

Contd...

(Table 5. Contd...)

		Most frequently	Frequently	Rarely
26.	Type of shed to be constructed	30 (17)	60 (33)	90 (50)
27.	Whether to inseminate the animals or not	30 (17)	50 (28)	100 (55)
28.	How and where to market the produce	40 (22)	92 (51)	48 (27)
29.	Maintenance of cattle shed	50 (28)	40 (22)	90 (50)
30.	Feeding animals	117 (65)	45 (25)	18 (10)
31.	Care of sick animals	130 (72)	35 (19)	15 (8)
32.	Inseminating the animals	30 (17)	50 (28)	30 (17)
33.	Cultivating fodder	40 (22)	85 (47)	55 (31)
34.	Collecting fodder	100 (55)	50 (28)	30 (17)
35.	Milking animals	60 (3)	100 (55)	20 (11)
36.	Management and care of poultry birds	130 (72)	35 (19)	15 (8)
37.	Goat rearing	95 (53)	45 (25)	40 (22)
38.	Selling of livestock produce	90 (50)	60 (33)	30 (17)

(Figures in bracket indicate the percentage)

More than 50 per cent of the respondents 'rarely' performed the roles like transporting the seedlings (54%), preparation of land for planting the seedlings (57%), pruning (55%), plant protection (55%), contour bunding (73%), teracing (71%), planting grass on bunds (64%), deciding the cropping pattern to be adopted (58%) and deciding the conservation measures to be adopted (67%).

Animal husbandry

With respect roles identified under animal husbandry majority of the respondents 'most frequently' performed the roles like number of animals to be maintained (53%), feeding animals (65%), care of sick animals (72%), collecting fodder (55%), management and care of poultry birds (72%), goat rearing (53%) and selling the livestock produce (50%). More than 50 per cent of the respondents 'frequently' performed the roles like type of breed to be maintained (53%), how and were to market the produce (51%) and milking of animals (55%). They 'rarely' performed the roles like type of shed to be constructed (50%), whether to inseminating the animals or not (55%), inseminating the animals (55%) and maintenance of cattle shed (50%).

4.4 Extent of participation of farm women in planning and management of watershed programme

A birds eye view of table 6 reveals that participation of farm women in planning and management of watershed programmes was very poor.

Table 6. Extent of participation of farm women in planning and management of watershed programme

n = 180

	Always	Sometimes	Never
1. Have you participated in in the survey conducted for starting the watershed project	0	10 (5)	170 (95)
2. Do you participated in the preparation of project outline	—	4 (2)	176 (98)
3. Do you participated in any agricultural training programme under watershed	—	51 (28)	129 (72)
4. Have you ever participated in the melas and exhibitions organised under watershed programme	—	98 (54)	82 (46)
5. Have you participated in deciding the programme to be implemented in your watershed	—	—	180 (100)
6. Have you ever been a 'mitra kisan' in watershed development programme	9 (5)	—	171 (95)
7. Have you involved in budget discussions at your watershed	—	—	180 (100)
8. Have you participated in the selection of beneficiaries or watershed development programme	9 (5)	—	171 (95)
9. Have you ever involved in evaluation and monitoring of watershed development	—	—	180 (100)
10. Have you contributed by way of suggestions for the improvement of watershed development programme	—	-8 (4)	172 (96)

(Figures in bracket indicate percentage)

Except in the case of items like participation by way of attendance in training programmes, melas and exhibitions, their participation is almost nil. Only those respondents who were 'mitra kisans' were found to have some amount of participation. There were only nine mitra kisans (5%) out of the total sample.

From the table it was clear that more than 95 per cent of the respondents were not participated in the survey conducted for starting the watershed programme, selecting the beneficiaries of the programmes and giving suggestions for improvement of watershed development programme. It could be observed that there was no participation in deciding the programmes to be implemented in your watershed, discussion regarding the budget of your watershed and evaluation and monitoring of programmes. But 54 per cent of the farm women were participated in melas and exhibitions under watershed programme. Only 28 per cent of the respondents were participated in training programmes while majority (72%) were not participated.

4.5 Extent of adoption of watershed programmes

From table 7 it could be be observed that more than 50 per cent of the respondents were fully adopt the programmes like agro forestry tree planting (67%), kitchen gardening (64%), poultry rearing (55%), feeding of animals (54%) and health care of animals (50%).

Table 7. Extent of adoption of watershed programmes

n = 180

Items	Full adopters	Partial adopters	Non adopters
Agriculture			
1. Soil conservation	86 (48)	47 (26)	47 (26)
2. Mixed cropping	60 (33)	90 (50)	30 (17)
3. Agro-forestry tree planting	120 (67)	41 (23)	19 (10)
4. Bio-fertilizer application	28 (16)	60 (33)	92 (51)
5. Kitchen gardening	116 (64)	40 (22)	24 (13)
Animal Husbandry			
6. Poultry rearing	100 (55)	50 (28)	30 (17)
7. Goat rearing	70 (39)	80 (44)	30 (17)
8. Housing system	80 (44)	60 (33)	40 (22)
9. Feeding animals	98 (54)	60 (33)	22 (12)
10. Health care of animals	90 (50)	53 (29)	37 (21)

(Figures in bracket indicate percentage)

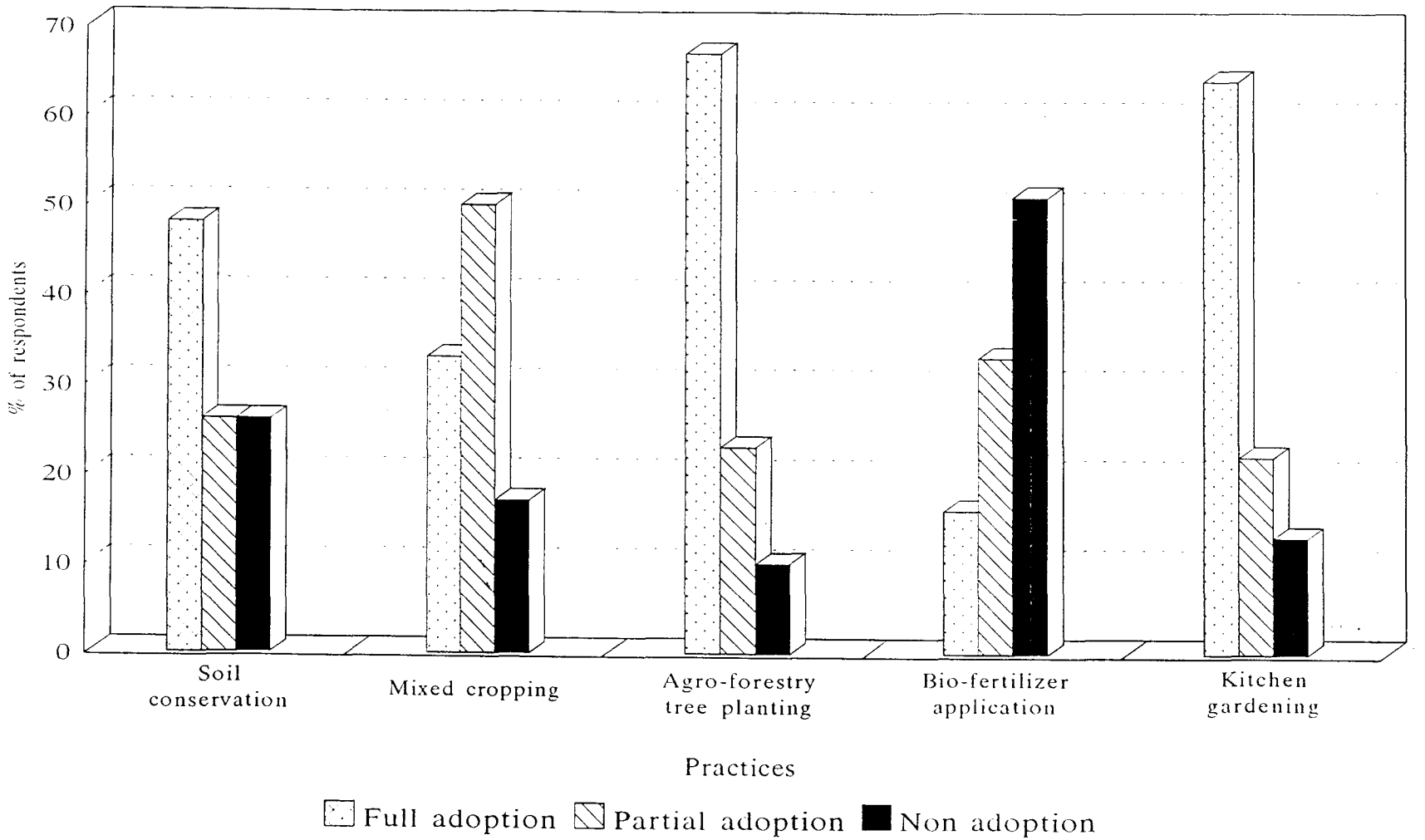


Fig. 3. Extent of adoption of watershed programmes - A. Adoption of agriculture programmes

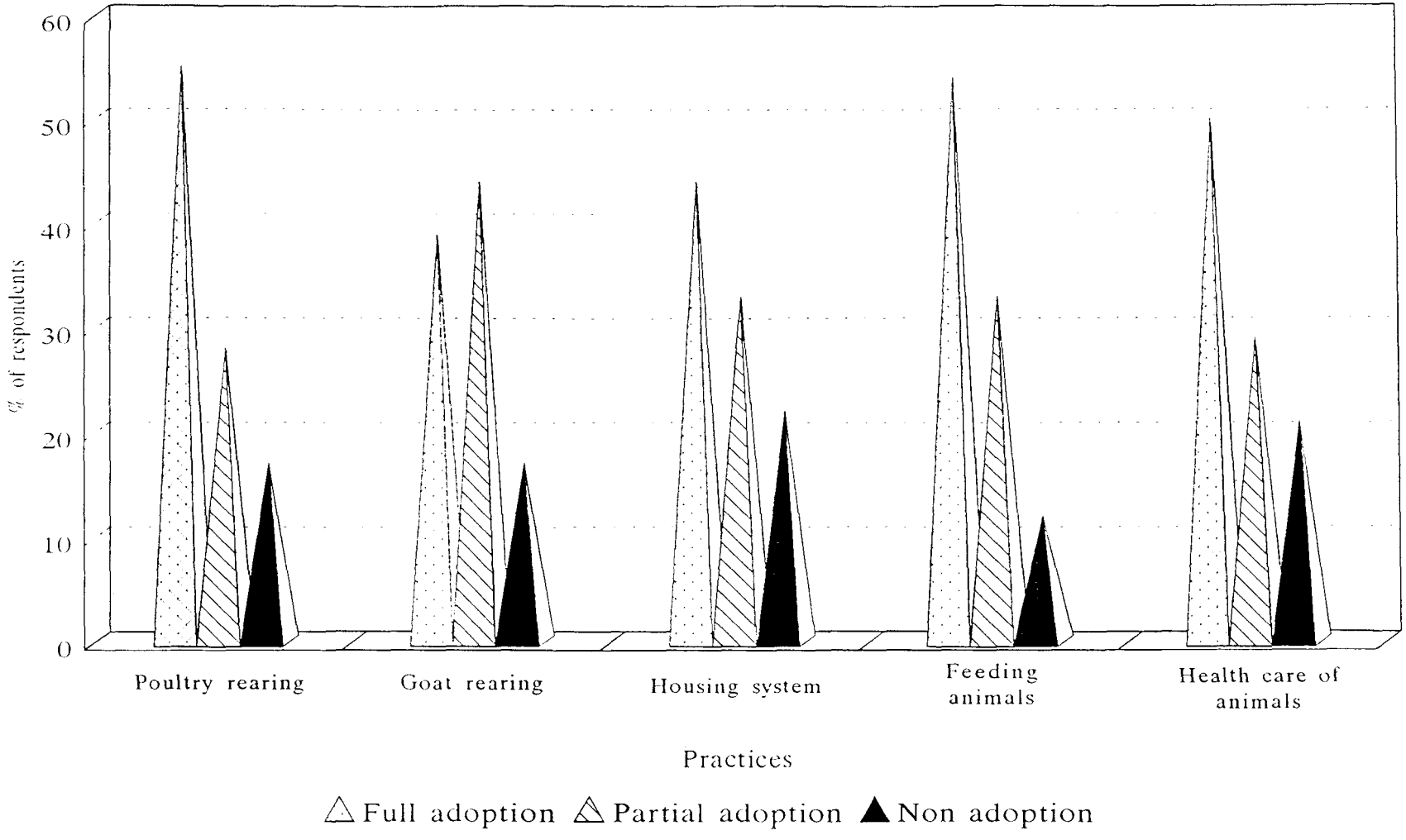


Fig. 4. Extent of adoption of watershed programmes - B. Adoption of animal husbandary programmes

In soil conservation 48 per cent of respondents were fully adopt the programme while the partial adopters and non adopters were 26 per cent each. Thirty nine per cent at the respondents were fully adopting the programme like goat rearing but 44 per cent of the respondents were partial adopters and 17 per cent were non adopters. Majority of the respondents were partially adopt the programmes like mixed cropping (50%). But the programme like application of biofertilizers (51%) majority of the respondents were non adopters. In livestock management 44 per cent of the respondents were fully adopt the programme like 'housing system' but 33 per cent and 22 per cent of the respondents were partial and non adopters respectively.

4.6 Inter correlation between the role perception, role performance, extent of participation and extent of adoption

From table 8 it could be observed that role perception was found to have positive and significant relationship with role performance and extent of participation at 1 per cent and with extent of adoption at 5 per cent level. Extent of participation was also found significantly and positively related with role perception and extent of adoption at 1% per cent level. Whereas role performance showed no significant relation with extent of adoption.

Table 8. Inter relationship between role perception, role performance, extent of participation and extent of adoption

n = 180

	Dependent variables	Correlation coefficient
i)	Role perception vs Role performance	0.9779**
ii)	Role perception vs Extent of participation	0.4224**
iii)	Role perception vs Extent of adoption	0.1748*
iv)	Role performance vs Extent of participation	0.4000**
v)	Role performance vs Extent of adoption	0.1442ns
vi)	Extent of participation vs Extent of adoption	0.2977**

* Significant at 5% level ** Significant at 1% level ns Not Significant

4.7 Relationship between dependent variables and selected characteristics

4.7.1 Correlation coefficient between selected characteristic and role perception of farm women

A bird eye view of table 9 reveals that except age, education, farming experience, annual income and farm size all the selected characteristics were found to be positively and significantly related with role perception of the 11 variables showing positive relationship.

Table 9. Relationship between selected characteristics and role perception of farm women

n = 180

Independent variables		Correlation coefficient
X_1	Age	-0.1234^{ns}
X_2	Education	0.1005^{ns}
X_3	Farming experience	-0.1043^{ns}
X_4	Annual income	0.1342^{ns}
X_5	Farm size	-0.0317^{ns}
X_6	Exposure to mass media	0.4775**
X_7	Contact with extension agency	0.3861**
X_8	Training	0.2415**
X_9	Cosmopoliteness	0.3013**
X_{10}	Social participation	0.5068**
X_{11}	Scientific orientation	0.2699**
X_{12}	Economic motivation	0.3608**
X_{13}	Risk preference	0.4438**
X_{14}	Achievement motivation	0.1815*
X_{15}	Innovation proneness	0.4073**
X_{16}	Attitude towards watershed programmes	0.3422**

* Significant at 5% level

** Significant at 1% level

ns Not significant

Achievement motivation was the only variable significantly related to role perception at 5% level of significant, were as all others were related at 1% level.

4.7.2 Correlation coefficient between selected characteristics and role performance of farm women

Table 10 reveals that except age, education, farming experience, annual income and farm size all the selected characteristics were found to be positively and significantly related with role performance of the 11 variables showing positive relationship. Achievement motivation was the only variable significantly related to role performance at 5% level, whereas all others were related at 1% level.

4.7.3 Correlation coefficient between selected characteristics and extent of participation of farm women in planning and management of watershed programme

From the data presented in Table 11 it was observed that all the socio psychological variables like exposure to mass media, social participation, contact with extension agency, scientific orientation, economic motivation, cosmopoliteness, risk preference, training, achievement motivation, innovation proneness, attitude towards watershed programmes were found to have positive and significant relationship with extent of participation of 1 per cent level.

Table 10. Relationship between selected characteristics and role performance of farm women

n = 180

Independent variables		Correlation coefficient
X_1	Age	-0.1203^{ns}
X_2	Education	0.0834^{ns}
X_3	Farming experience	-0.1267^{ns}
X_4	Annual income	0.1430^{ns}
X_5	Farm size	0.0169^{ns}
X_6	Exposure to mass media	0.4664**
X_7	Contact with extension agency	0.3665**
X_8	Training	0.2341**
X_9	Cosmopoliteness	0.3069**
X_{10}	Social participation	0.4870**
X_{11}	Scientific orientation	0.2758**
X_{12}	Economic motivation	0.3555**
X_{13}	Risk preference	0.4199**
X_{14}	Achievement motivation	0.1763*
X_{15}	Innovation proneness	0.3998**
X_{16}	Attitude towards watershed programmes	0.3245**

* Significant at 5% level

** Significant at 1% level

ns Not significant

Table 11. Relationship between selected characteristics and extent of participation of farm women in planning and management of watershed programmes

n = 180

Independent variables		Correlation coefficient
X_1	Age	-0.1976**
X_2	Education	0.4024**
X_3	Farming experience	-0.0643ns
X_4	Annual income	0.2521**
X_5	Farm size	0.1081ns
X_6	Exposure to mass media	0.5980**
X_7	Contact with extension agency	0.6836**
X_8	Training	0.6538**
X_9	Cosmopoliteness	0.5019**
X_{10}	Social participation	0.7350**
X_{11}	Scientific orientation	0.3546**
X_{12}	Economic motivation	0.3195**
X_{13}	Risk preference	0.4192**
X_{14}	Achievement motivation	0.3374**
X_{15}	Innovation proneness	0.4604**
X_{16}	Attitude towards watershed programmes	0.3894**

* Significant at 5% level

** Significant at 1% level

ns Not significant

It was also noticed that age, education and annual income were inversely related to extent of participation at 1 per cent level whereas farming experience and farm size exhibited no relationship.

4.7.4 Correlation coefficient of selected characteristics with extent of adoption of watershed development programmes

The Table 12 reveals the nature and degree of relationship between selected characteristic and extent of adoption of watershed development programmes namely education, exposure to mass media, social participation, contact with extension agency, scientific orientation, economic motivation, cosmopoliteness, risk preference, training, achievement motivation, innovation proneness and attitude towards watershed programmes were found to have positive and significant relationship with extent of adoption at 1 per cent level and farm size at 5 per cent level. But the characteristics like age, farming experience and annual income proved non-significant in their relationship with extent of adoption.

4.8 Constraints experienced by farm women

From the data presented in Table 13 it could be observed that lack of sufficient financial assistance given under watershed programme was the important constraints perceived by 74 per cent of farm women. This was closely followed by non availability of quality planting materials as expressed by 72 per cent. The third important constraint was the non availability of agricultural inputs in time as reported by 71 per cent.

Table 12. Relationship between selected characteristics and extent of adoption of watershed development programmes

n = 180

Independent variables		Correlation coefficient
X_1	Age	-0.0160^{ns}
X_2	Education	0.2181**
X_3	Farming experience	0.0461^{ns}
X_4	Annual income	0.0464^{ns}
X_5	Farm size	0.1520*
X_6	Exposure to mass media	0.3891**
X_7	Contact with extension agency	0.2508**
X_8	Training	0.2635**
X_9	Cosmopoliteness	0.2567**
X_{10}	Social participation	0.2262**
X_{11}	Scientific orientation	0.2708**
X_{12}	Economic motivation	0.2940**
X_{13}	Risk preference	0.2567**
X_{14}	Achievement motivation	0.3084**
X_{15}	Innovation proneness	0.2892**
X_{16}	Attitude towards watershed programmes	0.3573**

* Significant at 5% level

** Significant at 1% level

ns Not significant

Table 13. The constraints in participation and adoption of watershed development programmes as perceived by farm women

n = 180

	Yes	No
1. Lack of technical guidance	65 (36)	115 (64)
2. In-adequate training	100 (55)	80 (45)
3. Watershed development programme are not need oriented	50 (28)	130 (72)
4. Non availability of farm literature on watershed programme	60 (33)	120 (67)
5. Non availability of quality planting materials	130 (72)	50 (28)
6. Agriculture inputs are not available in time	127 (71)	53 (29)
7. Inadequate credit facilities	69 (38)	111 (62)
8. Watershed development programmes are not so remunerative	49 (27)	131 (73)
9. Watershed programme are not location specific	92 (51)	88 (49)
10. Delay in implementation of programme	116 (64)	64 (36)
11. Lack of marketing facilities	72 (40)	108 (60)
12. Lack of publicity	67 (37)	113 (63)

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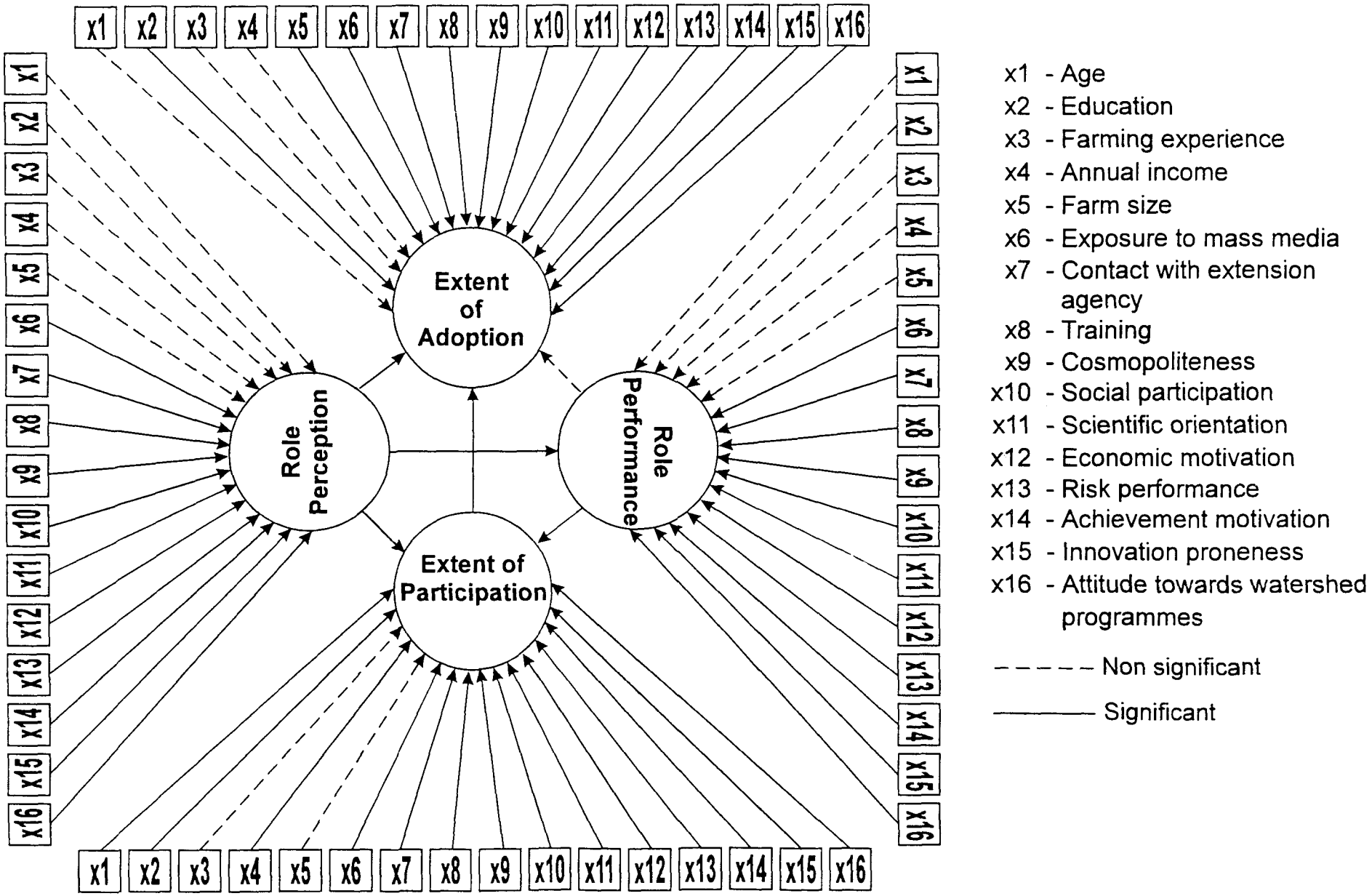


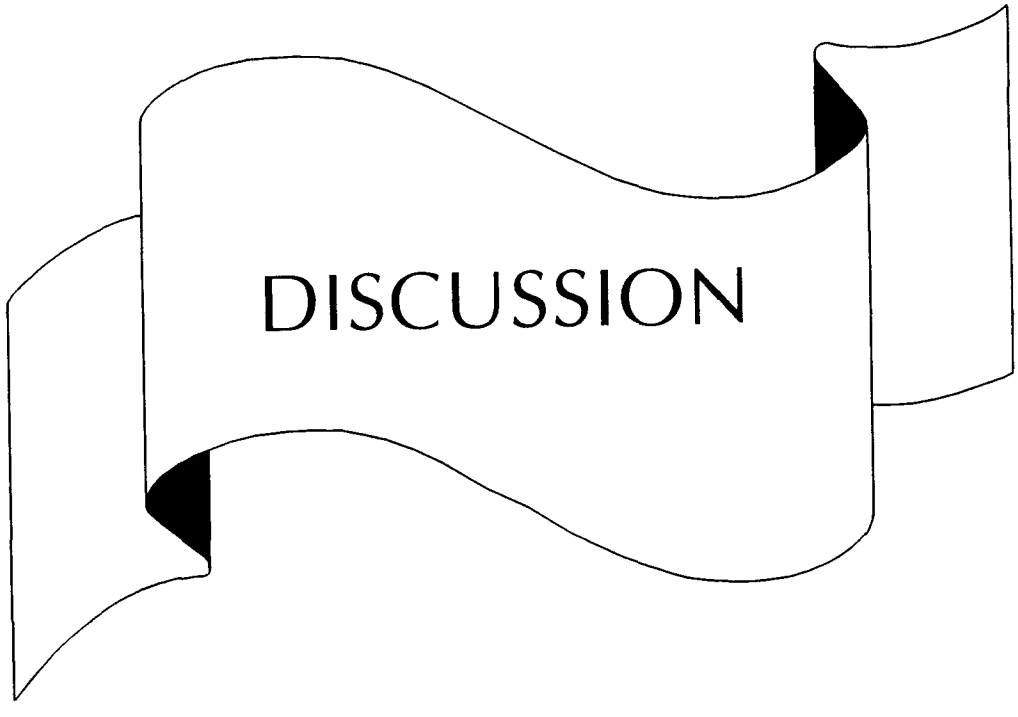
Fig. 5. Relationship between dependent variables and selected characteristics

(Table 13. Contd...)

	Yes	No
13. Procedural complexities	88 (49)	92 (51)
14. Political interference in selection of beneficiaries under watershed development programme	108 (60)	72 (40)
15. Financial assistance given under watershed programme are not sufficient	134 (74)	46 (26)
16. In-adequate linkage between 'mitra kisan' and farmers	76 (42)	106 (58)
17. Non-availability of quality fodder seeds	63 (35)	117 (65)
18. Non-availability of stones to construct contour bunds	59 (33)	121 (67)

(Figures in bracket indicate percentage)

Delay in implementation of programmes, political interference in selection of beneficiaries under watershed development programme, in adequate training and absence of location specific watershed development programmes were the next four constraints opined by 64, 60, 55 and 51 per cent of the respondents respectively.


DISCUSSION

CHAPTER V

DISCUSSION

The results obtained in this study are discussed and interpreted in this chapter under the following sections.

5.1 Characteristic Profile of farm women.

5.2 Importance of roles as perceived by farm women in planning and management at watersheds.

5.3 Role performance of farm women in planning and management of watershed

5.4 Extent of participation of farm women in planning and management of watershed programmes

5.5 Extent of adoption of watershed programmes

5.6 Inter correlation between the role perception, role performance, extent of adoption

5.7 Relationship between dependent variables and selected characteristics

5.8 Constraints experienced by the farm women

5.1 Characteristic profile of farm women

5.1.1 Mean, standard deviation and coefficient of variation of the variables under study

Table 1 presents the mean score, standard deviation and coefficient of variation of selected characteristics of farm women under study. It could be noticed form the table that the participation and extent of adoption had high coefficient of variation which is and indication of poor consistency as compared to the other two variables viz. role perception and role performance.

It could be noticed from the table that the sample of farm women under study was highly heterogeneous group with respect to most of the personal characteristics such as age, education, farming experience, farm size. In case of annual income the coefficient of variation was found to be very less. With respect to communication and to socio-psychological variables training, social participation, exposure to mass media, innovation proneness and contact with extension agency showed comparatively higher variation in the sample distribution than the other communication and socio psychological variable under study, Otherwise the sample was found to be more or less consistent.

5.1.2 Distribution of respondents on the basis of dependent variables

5.1.2.1 Role perception

The findings of table 2 reveals that majority of the farm women had low perception towards the roles identified under planning and management of watershed. It may be due to the reason that watershed development programme was a new concept for the respondents and the failure on the organisation to make the concept clear to the farm women.

5.1.2.2 Role performance

From table 2 it could be observed that 63 per cent of the respondents were performing low in the roles identified under planning and management of watershed programmes. It is quite natural low performance is due to their low perception, and the farm women engage hired laborer to do most of the physical work in the field.

5.1.2.3 Extent of Participation

Table 2 indicated that 72 per cent of the farm women were found to have very low participation in planning and management of watershed programmes. As mentioned above watershed is a new concept for them and in Kerala it is a trend that rural women have to take care of their house hold activities and their contact with extension agency and farming experience were low, and that is why the low participation of farm women in planning and management of watershed.

5.1.2.4 Extent of adoption

Even though majority of the respondent were low in perceiving their roles correctly and performing them, 53 percentage of farm women had high level of adoption of watershed programmes. The result is a big contradictory the result may be due to the fact that the adoption of the programmes were adopted by the male members of the family.

5.1.3 Distribution of respondents on the basis of Socio-psychological variables

5.1.3.1 Age

From the table it could be observed that 59 per cent of the respondents are in old age group (>45). It is due to the fact that the beneficiaries of the watershed programmes are confined to those having own land. As per our tradition the land owner is the oldest member of the family, because majority of the young women folk are educated and they prefer jobs other than agriculture.

5.1.3.2 Education

With respect to educational status it was found that only 10 per cent of the respondents had their education below primary school and 27 per cent had primary level education and 23 per cent had high school level and 13 per cent had college level education. Kerala is a state with cent

per cent literacy and education up to primary level is free and compulsory. The female literacy was also high in Kerala and not much discrimination is shown to female kids. Female are given equal opportunities for education with that of male. This may be the reason for such a result. This finding is in line with the study conducted by Dak *et al.* (1986), Seema (1986), Jayalakshmi (1996).

5.1.3.3 Farming experience

As seen from table 3, 51 per cent of the sample respondents belonged to the low group having less than the years of farming experience. It is due to, the majority of the respondents of the present study were above 45 years age group. So it is inferred that their involvement in agricultural operation were started at their early thirtees and their active involvement in farming was very low during their young age.

5.1.3.4 Annual income

The result presented in Table 3 revealed that annual income of 43 per cent of the respondents selected for the study ranges from 30001 to 40000 Rupees. It was also observed that not a single respondent was seen below the poverty line.

5.1.3.5 Farm Size

A higher proportion of the respondents (47 per cent) possessed land holdings that ranges between 21 - 40 cents. The respondents who had

farm size above 50 cents were only 21 per cent. The percentage of respondents belonged to the group of 41 to 50 cents and 11 to 20 cents were 16 per cent each. As per the report of the Department of Agriculture, Kerala (1986), there are about 2.8 million families with farms covering an area of 1.6 million hectares. This indicates that the average land holding of a family in Kerala is below 20 cents.

5.1.3.6 Exposure to mass media

Result presented in Table 3 revealed that 60 per cent of the respondents were found to have low mass media exposure. Farm women had low mass media exposure in spite of their high educational status and high innovation proneness. This may be due to most of the farm women were engaged in household activities so that their chances for listening to radio, watching T. V. were meagre.

5.1.3.7 Contact with extension agency

From table 3 it could be observed that 62 per cent of the farm women had low extension agency contact. The reason is that the farm women had low social participation and low mass media exposure and the farm women are mostly engaged in household activities. Hence the concentration of extension workers on male folk rather than on farm women.

5.1.3.8 Training

The result presented in table 3 revealed that 70 per cent of the respondents did not get any type of training. Twenty six per cent had got score ranging from 1 to 3 and only four per cent of farm had received training score between 4 and 6. The participation training programmes were very less because the female members have to take care of their house hold activities and mostly men are attending trainings.

5.1.3.9 Cosmopoliteness

As evident from Table 3, 55 per cent of the respondents were high in cosmopoliteness and the rest had low level of cosmopoliteness. In Kerala it is a trend that female members have to take care of their house hold activities. Male members are considered as earning members and it is the female who utilise those money for various house hold requirements. So the women have to go out for the purchase of house hold items, food clothings, medicines etc. The women have to visit the nearest town frequently for various personal or domestic purpose. This might be the reason behind such a result. The finding is in line with the study conducted by Sindhu (1994).

5.1.3.10 Social participation

With respect to social participation majority of the farm women (67%) were found to have less contact with social organisations. Only a

negligible fraction was found to have regular liaision with social organisation. Most of them were found to maintain only minimal contact with the social organisation and that with monitary objectives like having membership in Co-operative society for getting loans etc. Most of them were found to retrain from intefering in the affairs of such institutions.

5.1.3.11 Scientific orientation

A good percentage of the respondents (53 per cent) was found to be having very low scientific orientation it is because of the low mass media exposure low social contact and less contact with extension agency. Because of their low mass media contact the farm women did not have much more knowledge about latest technology in the field of agriculture. Hence the scientific orientation was very low.

5.1.3.12 Economic motivation

From table 3, it could be observed that the respondents were equally distributed in high and low groups with respect to this variable. Fifty per cent of the farm had high economic motivation because the facilities proposed to be offered under watershed programmes to the farm women might have made them more economically motivated. And the remaining 50 per cent had low economic motivation because of their low scientific orientation.

5.1.3.13 Risk Preference

As seen from table 3, it could be observed that majority of the respondents (53%) were found to have high risk preference and the remaining 47 per cent had low. It may the due to their high economic motivation and cosmopoliteness.

5.1.3.14 Achievement motivation

As seen from the table it could be observed the 52 per cent of the respondents had low achievement motivation. The reason for that is most of the respondents had low mass media participation, low scientific orientation and low social contact. This finding was in line with the study conducted by Sindhu (1994).

5.1.3.15 Innovation proneness

Table 3, reveals that majority of the respondents (54%) were found to have high innovation proneness. Innovation proneness is the cognitive aspect of changes which reflect the pre paredness of an individual to accept innovations in farming. This result is encouraging and pin point the need for exposing the farm women to new technologies and provide facilities to adopt the improve technologies in watershed planning and management.

5.1.3.16 Attitude towards watershed programmes

A good per cent of the respondents (53%) were found to have very favourable attitude towards watershed programmes. The favourable attitude may be due to the reason that they are having high economic motivation and many inputs given to them under watershed programme are free of cost.

5.2 Importance of roles as perceived by farm women in planning and management of watershed

Role perception of farm women was negligibly low in operations which they did not involve. For instance, farm women were found to have involved only in a few operations in agriculture and animal husbandry, and their role perception in other operations are remarkably low. This is clearly illustrated in Table 4 showing the distribution of farm women based on role perception.

In full agreement with the observation cited above, majority of the farm women manifested high role perception in planting seedlings, watering, weeding, plant protection, supervision of hired labours in the field, harvesting, processing, decision making regarding Number of animals to be maintained, feeding animals, Care of sick animals, management and care of poultry birds, and goat rearing. What is inferred from this is that unfamiliarity and lack of involvement have a significant hearing on the perception of any role.

5.3 Role performance of farm women in planning and management of watershed programmes

The data presented in table 5, indicated that with respect to the roles identified under agriculture, the roles viz. planting seedlings, watering, weeding, supervision of hired labourers in the field, harvesting and processing were most frequently performed by farm women.

It was observed that roles requiring most physical exertion such as, taking pit, land preparation, bunding etc. and those items require special skills were not performed by them frequently. They engage agricultural labourers to work in their fields. How ever most of the post harvest operations are done with in the house it self and that is the reason why their performance was more in processing activities.

Regarding supervision of hired labour in the field, in Kerala a majority of the farm family men folk will be away engaged in non-farm activities that brings more income to the family. So the women folk are compelled to go to the field and supervise hired labour. Planting the seedlings, watering, weeding and harvesting are comparatively lighter operations which can be done by women and so they participate more in such activities with respect to roles identified under animal husbandry, farm women performed the roles like decision making regarding number of animals to be maintained, feeding animals, care of sick animals, collecting fodder, management and care of poultry birds, goat rearing and selling the

livestock produce most frequently. This may be due to the reasons that the daily enterprise provide an additional source of income and the roles can be performed in and around the house hold. So their performance is more in these roles and majority of men folk will be engaged in non-farm activities so the women are compelled to do all these activities.

This finding is in line with the findings of the study conducted by Puri (1974), Deepali (1979), Dak *et al.* (1987), Rath *et al.* (1988), Singh and Sharma (1988) and Shilaja (1990).

5.4 Extent of participation of farm women in planning and management of watershed programmes

The result presented in Table 6 revealed that participation of farm women in planning and management of watershed programmes was very poor. They some times participate in programmes like training, melas and exhibitions. Their participation in other activities are almost nil. Only those respondents who were mitrakisans were found to have some amount of participation. There were only nine mitrakissans out of the total sample of 180.

The low participation of farm women is due to their low mass media exposure, low social participation and low extension agency contact. Though meagre, participate in trainings, melas and exhibitions by way of attendance. This result emphasis the need for making purposeful effort to

bring the women folk to the main stream and involve them in planning and management of development programmes.

5.5 Extent of adoption of watershed programmes

It was clear from the result presented in table 7 that majority of the respondents (67%) have fully adopted the programme viz. Agro forestry tree planting. This may be due to the reason that the trees like Teak, Mangium etc. require little after care and give high net returns and saplings are available free of cost from krishibhavans.

Majority of the respondents (64%) have fully adopted the programme like kitchen gardening. The demand of vegetables to meet their daily requirement is more. Family labours can be utilised for this purpose and not much hired labour is necessary. Quality seeds, fertilizers etc. are given free of cost. Naturally when there is a need and resources are available and crucial inputs are provided, adoption will be more. Regarding mixed cropping, 33 per cent have fully adopted this programme. Kerala is characterised by small and marginal holdings monocropping is not feasible and profitable in this small and marginal holding. That is why this result.

The extent of adopting of biofertilizer was low, as the farm women are unaware about the scientific application of biofertilizer to various crops and they did not know the advantages of it. In animal husbandry programmes majority of the respondents have (55%) fully adopted the

programme like poultry rearing. The reason is that the farm women can earn additional income by rearing poultry, and most of the farm women are highly economically motive.

Regarding feeding and health care of animals, majority of the respondents are fully adopters of the programmes. It is due to the reason that men are the earning members of the family and they are always working outside of their home and farm women are mostly engaged in house hold activities. So they should take care of the animals.

5.6 Inter correlation between the role perception, role performance, extent of participation and extent of adoption

The inter correlation among the dependent variables is furnished in Table 8. It is clearly evident from the table that except role performance and extent of adoption all the five pairs are seen positively and significantly related with each other.

Highly significant and positive correlation was observed to exist between the over all role perception and role performance. This finding reminds of the observation made by Sharma and Singh (1970) Sherwani (1983) Natraja and Lovely (1989) Kumari and Nayar (1991) Bhople and Patki (1992) Jiju (1994).

Role perception and role performance are complementary to each other. Farm women having clear perception about their roles in planning

and management of watershed then she is likely to perform her role in planning and management of watershed and vice versa. This might have been the possible reason for the observed significant and positive correlation between over all role perception and role performance. From the table it could be observed that more the perception more will be the participation and adoption. As the performance increase the participation of women in various activities would also increase. Extent of participation of farm women and extent adoption are positively and significantly related with each other.

5.7 Relationship between dependent variables and selected characteristics

5.7.1 Correlation coefficient between selected characteristic and role perception of farm women

The nature and degree of relationship between selected characteristics of farm women and their role perception were worked out by Pearson Product moment correlation coefficient and the calculated 'r' values are furnished in Table 9. From the table it could be observed that except age, education, farming experience, annual income and farm size all the selected characteristics were found to be positively and significanlty related with role perception.

Age was found to have non significant relationship with role perception of farm women. The reason is that most of the farm women

came under the old age group and their perception of roles in watershed programmes are very low. This finding is in line with the research study reported by Seema (1986).

No significant correlation was found to exist between role perception of farm women and their educational status. This finding comply with that of Singh and and Sinha (1970).

Educational status of farm women need not decisive in building up her role perception in watershed planning and management. Though there is very likelihood of high educational status being instrumental in shaping ones role perception, it is the actual involvement in different aspect of agricultural production coupled with one's experience might be the reason for the insignificant relationship existing between educational status of farm women and their role perception.

Farming experience was found to have no significant correlation with the perception of farm women. It may be due to the limited involvement of farm women in agricultural operational and their participation in planning and management of watershed development programmes are very meagre because watershed approach to agricultural development being relatively new concept. This finding is supportive of the inference made by Seema (1986) and Jiju (1994).

Annual income had no significant relationship with role perception. This means that annual income of family had no significant influence on

role perception of farm women in planning and management of watershed development programmes.

The farm size was found to have no significant correlation with their role perception. It may be due to the smaller holding possessed by the respondents. This finding endorses the inference of Seema (1986) and Jiju (1994).

Mass media exposure of farm women was positively and significantly related with role perception. It is quite reasonable that the prime purpose and function of mass media were to create general awareness among the audience hence the result.

Contact with extension agency was positively and significantly related with role perception of farm women, with presumably low social participation and low mass media exposure, might have originated from their contacts with extension agencies. This might have helped them in developing higher consciousness regarding agricultural operations under watershed development programmes which would have eventually influenced their role perception. The reason for positive and significant correlation between training and role perception is that, subject matter training and skill training under gone may help the farm women to acquire sound knowledge and skill about the various scientific practices to be followed for watershed development programmes.

Relationship between cosmopoliteness and role perception was found to be positively significant. The more a person is oriented to out side world, he may develop more contacts with other person, agencies and get exposed to various information sources. This might have helped them to perceive their roles accurately.

Positive and significant relationship between social participation and role perception of farm women. There is reason to believe that persons by virtue of their involvement in different organisation and interaction with other well informed persons and officials gain informations about the watershed development programmes consequently their perception will be more.

Scientific orientation was found to have positive and significant correlation with role perception of farm women. Objective of watershed development programme is to maximise production through conservation of natural resource like soil and water and utilisatin of available resource including human resource for sustainable development through an integrated approach this can be conceived correctly only a person has scientific orientation can evaluate the information obtained from various source and perceive them correctly.

Economic motivation was positively and significantly correlated with role perception of farm women in planning and management of watershed which depicted that more the economic motivation more would

be the role perception. The more one is motivated by economic benefit, the more will she try to perceive the practices and hence the result.

Risk preference was found to have a positive and significant correlation with role perception of farm women in watershed planning and management. It may be due to their high annual income and economic motivation and from the correlation matrix it was seen that scientific orientation was positively and significantly correlated with risk preference and both risk preference and scientific orientation were positively and significantly correlated with role perception. This might be the reason for such a result.

Achievement motivation was found to have positive and significant correlation with role perception. This finding confirms the arguments of Singh and Kumar (1975), Luthans (1983), Reddy (1983) and Jiju (1994).

It is spontaneously expressed desire of an individual to attain an inner feeling of personal accomplishment rather than social recognition or prestige. It is instrumental in persuading a person to perform, better perception persuly performance hence this result.

The reason for positive and significant correlation between innovation proneness and role perception is that every individual had a desire for change, only the intensity of desire for change varies from person to person. This change proneness is a congnitive aspect which reflects the perparedugs of an individual to accept the innovations. This role hold

true in the case of farm women also. They try to perceive all sorts of information regarding the improved technologies from various source and get convinced about it and perceive them properly.

The attitude and perception were found positively correlated. The favourable attitude might have created an interest in the respondents to perceive and perform their roles better to earn more profit through watershed development programmes.

In the light of above discussion the hypothesis that there is no relationship between role perception and selected personal, communication and socio psychological variables is rejected but for age, education, annual income, farming experience and farm size. Alternate hypothesis that role perception is positively and significantly related to exposure to mass media, contact with extension agency, training, cosmopoliteness, social participation, scientific orientation, economic motivation, risk preference, achievement motivation, innovation proneness, attitude towards watershed programmes is confirmed.

5.7.2 Correlation coefficient between selected characteristic and role performance of farm women

Table 10 revealed that the correlation coefficient of selected variables with role performance of farm women in planning and management of watershed. It could be observed that except age, education,

farming experience, annual income and farm size all the selected characteristics were found to be positively related with role performance.

Mass media exposure of farm women was positively and significantly related with role performance. It is quite reasonable that the prime purpose and function of mass media were create general awareness among the audience hence the result.

Contact with extension agency was positively and significantly related with role performance of farm women, with presumably low social participation and low mass media exposure, might have originated from their contacts with extension agencies. This might have helped them in developing higher consciousness regarding agricultural operations under watershed development programmes which would have eventually influence their role performance.

The reason for positive and significant correlation between training and role performance is that subject matter training and skill training undergone may be help the farm women to acquire knowledge and skill about the various scientific practices to be followed for watershed development programmes.

Relationship between cosmopoliteness and role performance was found to be positively and significant. The more a person is oriented to out side world, he may develop more contacts with other persons, agencies

and get exposed to various information sources. This might have helped them to perform their roles accurately.

Positive and significant relationship between social participation and role performance of farm women. There is reason to believe that persons by virtue of their involvement in different organisation and interaction with other well informed persons and officials gain informations about the watershed development programmes consequently their performance will be more.

Scientific orientation was found to have positive and significant correlation with role perception of farm women objective of watershed development programme is to maximise production through conservation of natural resource like soil and water and utilisation of available resource including human resource for sustainable development through an integrated approach this can be conceived correctly only a person has scientific orientation can evaluate the information obtained from various source and perform them correctly.

Economic motivation was positively and significantly correlated with role perception of farm women in planning and management of watershed which depicted that more the economic motivation more would be the role perception. The more one is motivated by economic benefit, the more will she try to perceive the practices and hence the result.

Risk preference found to have a positive and significant correlation with role perception of farm women in watershed planning and management. It may be due to their high annual income and economic motivation, from the correlation matrix it was seen that scientific orientation was positively and significantly correlated with risk preference and both of these variables are positively and significantly correlated with role performance. This might be the reason for such a result.

Achievement motivation was found to have positive and significant correlation with role performance. This finding confirms the arguments of Singh and Kumar (1975), Luthans (1983), Reddy (1983) and Jiju (1994).

It is spontaneously expressed desire of an individual to attain an inner feeling of personal accomplishment rather than social recognition of prestige. It is instrumental in persuading a person to perform well. Hence this result.

The reason for positive and significant correlation between innovation proneness and role perception is that every individual had a desire for change. Only the intensity of desire for change varies from person to person. This change proneness is a cognitive aspect which reflects the pre paredness of an individual to accept the innovations. This rule hold true in the case of farm women also. They try to perceive all sorts of information regarding the improved technologies from various sources and get convinced about it and perform them properly.

The attitude and role performance were found positively correlated. The favourable attitude might have created an interest in the respondents to perceive and perform their roles better to earn more profit through watershed development programmes.

In the light of above discussion the hypothesis that there is no relationship between role performance and selected characteristics is rejected but for age, education, annual income, farming experience and farm size. Alternate hypothesis that role performance is positively and significantly related to all other variables is confirmed.

5.7.3. Correlation coefficient between selected characteristic and extent of participation of farm women in planning and management of watershed programmes

The nature and degree of relationship between selected characteristics of farm women and their extent of participation were worked out by pearson product moment correlation analysis and the calculated 'r' value are furnished in Table 11. From the table it could be observed that except farming experience and farm size all the selected characteristic were found to be positively related with extent of participation.

Age had a positive and significant relationship with extent of participation. Most of the respondents were under old age group, as increasing the age participation of women to various activities will increase

this might be the reason behind such a result. The finding of the result is in conformity with the study conducted by Seema (1986).

Correlation between education and extent of participation was found to be positively and highly significant. The reason is that education expose them to external world by which they might have received information regarding these programmes and increase education level would result more participation of women in various programmes.

Annual income had positive relationship with extent of participation. All the respondents are above poverty line due to their high annual income, so the farm women had more favourable attitude to participate in planning and management of watershed, hence the result.

Mass media exposure was observed a positive and significant relationship with extent of participation. Mass media exposure enable the individual to improve, update and supplement the knowledge in agriculture. This would help them to perceive scientific methods of farming and adoption this in turn might have resulted in better participation in watershed development programmes.

Contact with extension agency have helped them in developing higher consciousness regarding agricultural operations under watershed development programmes which would have eventually influenced their extent of participation in various watershed activities. This might be the

reason for positive and significant relationship between contact with extension agency and extent of participation.

Training was found to have positive and significant correlation between extent of participation. By participating in training programmes, farm women developed a favourable attitude towards the watershed programmes this will be the reason for such a result.

Correlation between cosmopoliteness and extent of participation was found to be positively significant. The more a person is oriented to out side world, more will the chance to develop contacts with other persons, agencies and get exposed to various information sources and gain information about the development programmes. The gain in information will create interest and desire. Then one seek more and more about it. This learning theory is applicable in the case of farm women also. This might be the reason for the obtained result.

The reason for positive and significant relationship between social participation and extent of participation may be that persons by virtue of their participation in different organisations and interaction with other well informed persons and officials, gain information about the watershed development programmes. Consequently their participation in such programmes are improved.

Scientific orientation had positively and significantly related with extent of participation. The farm women had high cosmopoliteness,

innovation proneness and achievement motivation may be the reason for such a result and the watershed development programmes are based on sound scientific principle eventually a person with high scientific orientation approach the programmes with an open mind.

Economic motivation was found to have a positive and significant correlation with extent of participation which reveals that more the economic motivation more would be the participation. The more one is motivated by economic ends, the more will he try to participate in the programmes which are aimed at increasing sustainable returns. Economic motivation couple with scientific orientation might have contributed for such a result.

Positive and significant correlation between risk preference and extent of participants in watershed development programmes is due to their high economic motivation, the respondents has to take risks in participating certain programmes which are beneficial to them.

Achievement motivation was found to have a positive and significant correlation with extent of participation.

Mc Clelands basis theme of achievement motivation locates the need to achieve as an individuals orientation within the value complex of a culture thus being embedded in the value system of an individual, it is quite probable that social value might have influenced their participation in various activities.

The reason for positive and significant correlation between innovation proneness and extent of participation is due to the respondents desire to change, this change proneness is a congnitive aspect which reflects the preparedness of an individual to accept the innovations in farming. They try to acquire all the information regarding the programmes and participate in the programmes.

Due to high attitude of the farm women towards the watershed prgorammes would try to explore more details about the field, and economic returns from the watershed programmes are high, consequently it would result a positive and significant correlation with extent of participation.

In the view of the above discussion the hypothesis that there is no significant relation between extent of participation and selected characteristics is rejected but farming experience and farm size. Alternate hypothesis that extent of participation is positively and significantly related to all other variables is confirmed.

5.7.4. Correlation coefficient of selected characteristics with extent of adoption of watershed development programmes

The nature and degree of relationship between extent of adoption of watershed development programmes and the selected characteristics of farm women is presented in Table 12, it is evident from the table that all the selected characteristics of farm women except age, farming experience

and annual income were positively and significantly related with extent of adoption. The result are discussed below.

Education was found to have a positive and significant relationship with extent of adoption. The reason is that education exposes them to external world by which they might have received information regarding watershed programmes and increase education level would result more adoption of programmes.

Farm size was found positively and significantly correlated with extent of adoption. The range of farm size observed in the sample was 10-160 cents, many programmes for watershed development are land based activities. Eventhough they posses some land they may not be able to adopt all land based activities. Women having more area of land may adopt more number of practices. This may be the reason for this result.

Positive and significant correlation was obtained between mass media participation and adoption of watershed development programmes. This finding is quite justifiable because the prime purpose and function of mass media is to create general awareness among the audience and develop an interest among the users to know more about the messages send through them. When that function is achieved people are motivated to seek more and more information. A clear understanding and knowledge will result in better adoption.

Contact with extension agency provides the farm women with functional and purposive information on scientific farming. This score as a favourable condition resulting in the adoption of cultivation practices as indicated by the positive relationship between contact with extension agency and extent of adoption. The result of this study was supported by the findings of Kanthraj (1980) and Jnanadevan (1993).

Eventhough the contact with extension agency was comparatively low for farm women those who had better contact with extension agency showed better adoption of watershed programmes. In addition to this the high economic motivation, high innovation proneness and high education of respondents might have contributed to the high adoption score of the farm women.

The reason for positive and significant correlation between training and extent of adoption is that subject matter training and skill training under gone may help the farm women to acquire knowledge and skill about various scientific practices to be followed for watershed programme, hence the result.

Cosmopoliteness was observed to have positive and significant relationship with the extent of adoption. Those persons with more cosmopoliteness get more chance to expose to what is happening outside the social system. Also they get opportunity to share the experience of others. This might have influenced their out look towards watershed development programme and resulted in latter adoption.

Social participation denotes involvement of the farm women in various activities of different social organisation, which provides them with enough exposure to new developments in different fields which in turn serve as a sufficient condition for adoption of development programmes this indicating a positive correlation with social participation and adoption. It was seen that majority of the farm women were having only low social participation.

Scientific orientation also showed positive and significant correlation with extent of adoption. There is no wonder in this finding as the recommended programmes are based on sound scientific principles. Naturally, farm women with good scientific orientation use to adopt such programmes. Lot of encouragement by way of inputs are being provided to the beneficiaries.

Economic motivation was found to have a positive and significant relationship with the extent of adoption of practices recommended or included in the watershed development programme and are intended to facilitate the beneficiaries to gain sustainable production by improving and conserving quality and quantity of available resources. For most of the programmes undertaken watershed programmes government is rendering assistance in kind and cash. Then economically motivated individual will naturally avail these facilities and try to earn more income. That is why this finding. This result is conformity with the finding of Singh and Singh (1970), Sajeevchandran (1989), Suthe *et al.* (1991), Nizamudeen (1996).

Positive and significant relation was observed between risk preference and extend of adoption. On perusal of the inter correlation matrix it could be noticed that economic motivation and risk preference are significantly and positively related. As pointed out earlier economic motivation has positive influence on adoption it may be the influence of economic motivation, that yielded such a relationship with risk preference and extent of adoption. This finding was in accordance with those of Ramachandran (1974), Rajendran (1978), Pillai (1983) and Jallel (1992).

Achievement motivation is spontaneously expressed desire of an individual to attain an inner feeling of personal accomplishment rather than social recognition or prestige. It is instrumental in persuading a person to perform better. This might be the reason behind the existence of significant positive and correlation between achievement motivation and extent of adoption.

Innovation proneness was found to have positive and significant correlation with extent of adoption. This might be due to the respondents desire to change, this change proneness is a cognitive aspect which reflects the preparedeness of an individual to accept the innovations in farming. They try to acquire all the information regarding the programmes and adopt the programmes in their fields.

The attitude of farm women towards watershed development programmes and their extent of adoption are positively and significantly

correlated. The favourable attitude might have created an interest in the respondents to earn more profit and preserve the available resources through adoption of watershed development programmes.

In the light of above discussion the hypothesis that there is o relationship between extent of adoption and selected personnal, communicaton and socio psychological variables is rejected but for age, farming experience and annual income. Alternative hypothesis that extent of adoption is positively and significantly related to all other variables is confirmed.

5.8 Constraints experienced by farm women

In participation and adoption of watershed programmes farm women are likely to face many constraints. Some of the constraints as perceived by them have been presented in the Table 13 those constraints are discussed below.

Lack of financial assistance given under watershed programme was the important constraint perceived by the farm women. From the survey it was understood that the financial assistance given to respondents to meet the basic requirements. They expressed the view that a sufficient amount should be made available to them.

Non availability of quality planting material is another prominent constraint reported by the farm women. This finding points towards the

need of improving the availability of quality planting materials under the programmes. Many farm women opined during interview that the materials supplied are not good and not supplied in time. While procuring seeds and planting materials for supply, quality should be ensured and they should be supplied before the season over.

The third important constraint was non availability of agricultural inputs in time. Eventhough there was a fixed time schedule for different management practices to be carried out under this programme, there was instances of administrative delay in making available inputs in time. Such delay will curb the enthusiasm of the farmers and retards progress of the programme. Hence efforts used be initiated on the part of the implementing agency to avoid such delay and make available inputs in time.

Delay in implementation of programmes was another constraint faced by them. It is because of the long procedures to implement various programmes under watershed. Hence effort should be made to avoid such delay from the side of the implementing agency.

Political interference in selection of beneficiaries under watershed programme, in-adequate training and absence of location specific technology for watershed development etc. were the constraints listed in their order of decreasing intensity.

In-adequate training was one of the important constraints. This may be due to the low extension agency contact and low social participation

of women and also training programmes were organised for way from their villages and at odd times. Moreover these farm women can not be absent from their house hold for a long period. Hence the training programmes are to be arranged in the villages it self for a short period as proper times.

Watershed programmes are not location specific. Most of the farm women are from rural areas. The soil type, and availability of land resources and water resources may vary from one place to another, so the scheme intended to one area may not be suitable for another area. The very objective of the watershed programme is to formulate and implement the location specific schemes for the farm families, it may not be happened in the real sense.

Hence the officials of the agricultural department should ensure that the proposed schemes are highly location specific.

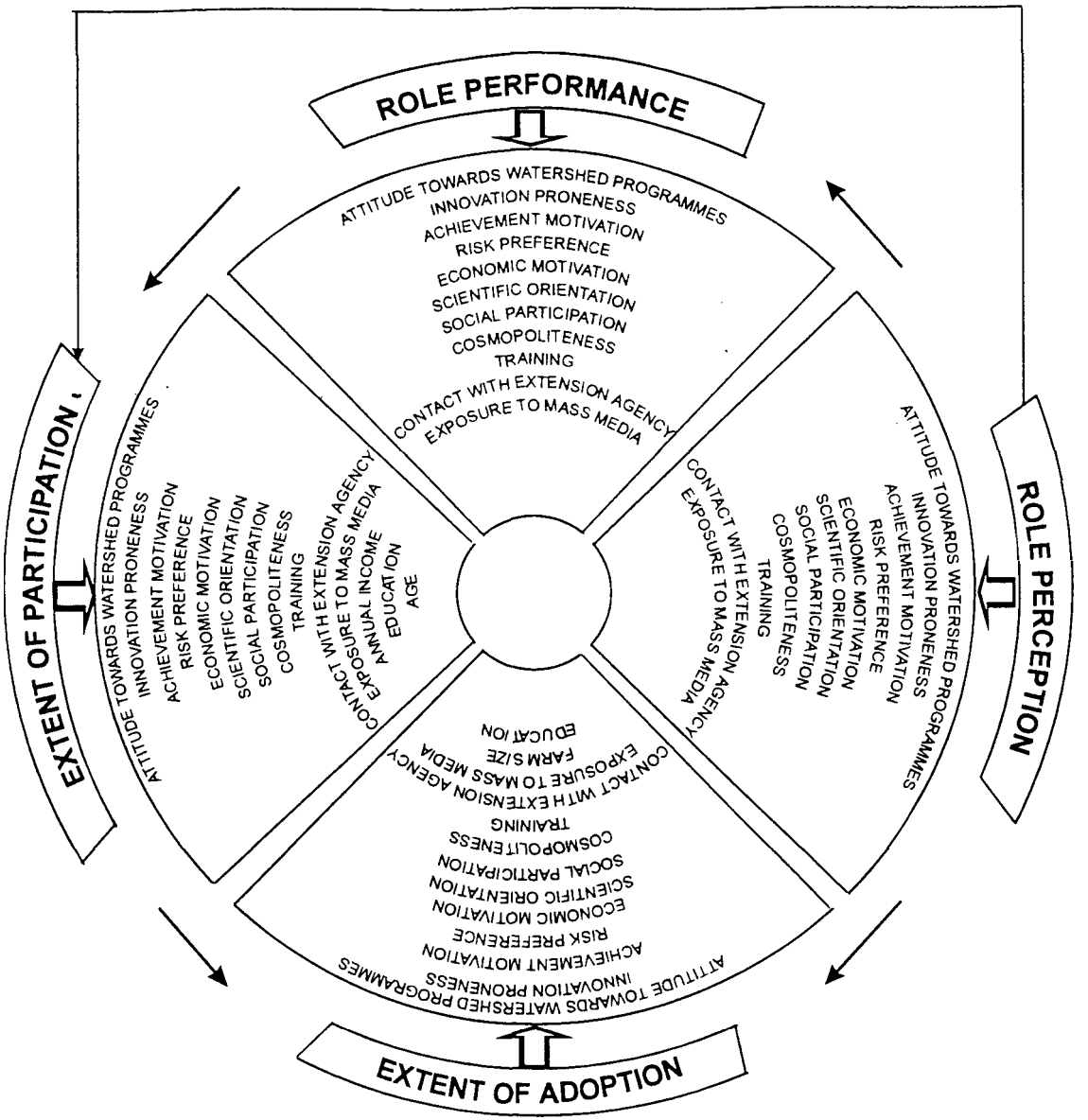
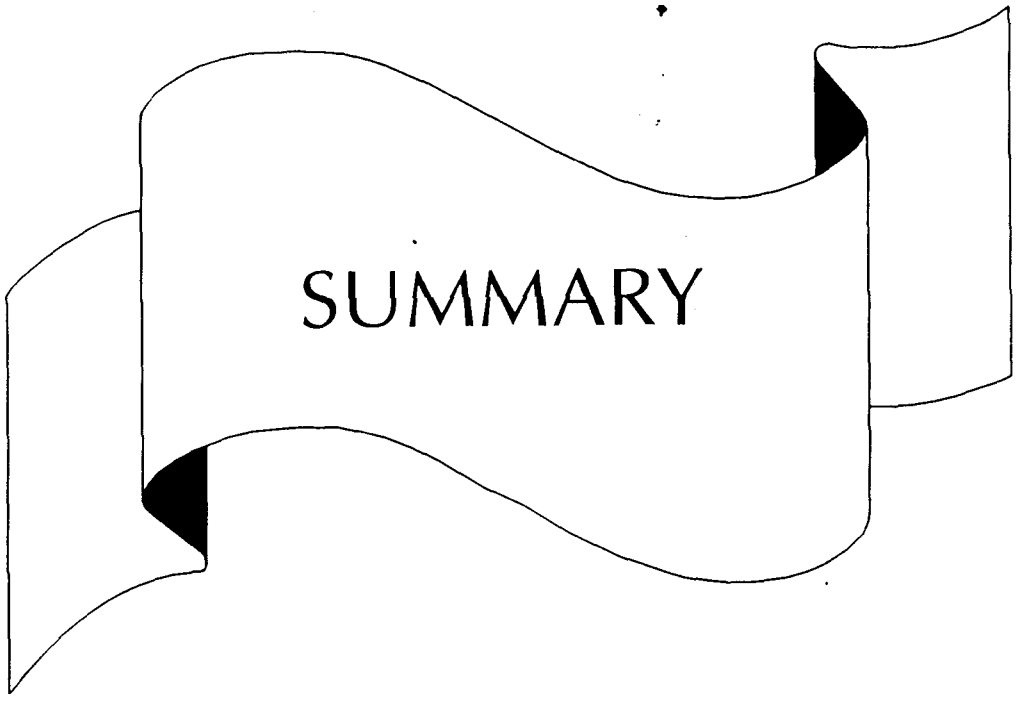


Fig. 6. Empirical model of the study


SUMMARY

CHAPTER VI

SUMMARY

Farm women are the back bone of Indian agriculture. They contribute more to food production and family income in terms of both skilled and unskilled labour than is generally known or recognised. In rural areas migration of men from agriculture to non-farm occupation and changes in farming system are exertions. Social pressure on women to accept more and more responsibilities. Now women are moving slowly from invisibility to visibility and are being recognised as part and parcel of developmental efforts all over the world. Women's contribution to the farm sector has largely ignored and inadequately understood. They significantly contribute in all land base activities including animal rearing, firewood collection etc in addition to routine house hold activities.

Watershed planning is now considered as a scientific method of planning for achieving maximum and sustainable returns from unit and land by over coming hydrologic barriers and through integrated approach minor irrigation, animal husbandry, sheep rearing, fisheries and other rural development activities which are under taken on ad-hoc basis can be

integrated into watershed development project after studying the soil and climate peculiarities in each watershed area. This will lead to an efficient management of the land and water resources and thus result in the over all development of the area. By adoption of the programme, the percentage contribution from women as compared with men in these activities has increased substantially (Arya 1995).

NWDPRA was started in Kerala in the year 1990-91. The programme was implemented by the different development departments under the Government of Kerala. It is a fact that the success or failure of agricultural development programmes depends upon the role played by women in rural areas is being realised more and more recently. That is why it is envisaged that women must have active participation in each and every stage of planning and management of watershed development programmes and in this programmes steps have been taken to reduce the problems of women by giving financial assistance to start small scale industries and giving training on various aspects related to agriculture and allied fields to improve their skill and knowledge. According to the census report 1991 the population status of women in Kerala was 50.9 per cent conducting a research study in this field it would be possible to get an insight into the role that can be played by women farmers, and to assess their role perception and performance, and extent of participation in watershed development programmes and extent of adoption of the programmes, the constraint faced by them etc.

Hence the present study was taken up with the following objectives

i. To study the role perception of farm women in planning and management of watershed programmes

ii. To assess the role performance of farm women in planning and management of watershed programmes

iii. To study the participation of farm women in planning and management of watershed development programmes

iv. To assess the extent of adoption of watershed development programmes

v. To identify the constraints experienced by the farm women in participation and adoption of watershed development programmes

6.2 Methodology

The study was made in two selected districts of Kerala, namely Kollam and Kottayam. From each of the selected districts three watersheds were selected randomly. From each selected watershed, 30 farm women each were selected randomly thus forming a total sample of 180 respondents.

Appropriate indices and measuring devices were developed to measure role of perception and role performance of farm women in planning

and management of watershed and extent of participation and adoption of watershed programmes by them and tested for its validity and reliability. Problems faced by the farm women in participation and adoption of watershed programmes were also identified. The selected personal and socio-psychological variables were measured using adopted scales or schedules developed for the purpose.

The data were collected by personal interview. Different statistical tools like percentages, frequencies, coefficient of variations, correlation coefficient etc. were used to analyse the data. The salient findings are presented below.

6.3 Findings

1. With respect to role perception and role performance majority of them are (63%) belonged to low group. Their participation in planning and management of watershed programmes was also very low. Only 28 per cent of them had high participation. Fifty three per cent of the respondents revealed high level of adoption.

2. The distribution of farm women with respect to their personal and socio-psychological variables revealed that majority were in the high group in the case of age (59%), education (75%), cosmopoliteness (55%), economic motivation (50%), risk preference (53%), innovation proneness (54%) attitude towards watershed programme

5. Participation of farm women in planning and management of watershed was found very poor. Except in the case of items like participation by way of attendance in training programmes, melas and exhibitions, their participation is almost nil. Only those respondents who were 'mitra kissans' were found to have better participation.

6. The study revealed that majority of the farm women had fully adopted the programmes like agro forestry tree planting, kitchen gardening, poultry rearing, feeding of animals and health care of animals.

7. The result of correlation analysis revealed a positive and significant relationship between, role perception, role performance, extent of participation and extent of adoption. Extent of participation was also found significantly and positively related with role perception, role performance and extent of adoption.

8. With regard to role perception, a positive and significant relationship was found between characteristics viz. exposure to mass media, contact with extension agency, training, cosmopoliteness, social participation, scientific orientation, economic motivation, risk preference, achievement motivation, innovation proneness and attitude towards watershed programmes.

9. In the case of role performance variables like exposure to mass media, contact with extension agency, training, cosmopoliteness, social participation, scientific orientation, economic motivation, risk preference, achievement motivation, innovation proneness and attitude towards watershed programmes were seen to be positively and significantly correlated.

10. The result of correlation analysis revealed that, a positive and significant relationship exist between, participation and age, education, annual income, exposure to mass media, contact with extension agency, training, cosmopoliteness, social participation, scientific orientation, economic motivation, innovation proneness and attitude towards watershed programmes.

11. With regard to extent of adoption a positive and significant relationship was found between the characteristics viz. education, farm size, exposure to mass media, contact with extension agency, training, cosmopoliteness, social participation, scientific orientation, economic motivation, risk preference, achievement motivation, innovation proneness and attitude towards watershed programmes.

12. Inadequate financial assistance given under watershed programme (74%), non availability of quality planting materials (72%) non availability of agricultural inputs in time (71%) delay in implementation of programmes (64%) political interference in

selection of beneficiaries under watershed development programme (60%) in adequate training (55%) and absence of location specific watershed development programmes (51%) were identified as the major constraints in that order.

6.4 Implication of the study

The result of the study shows that majority of the farm women have low role perception and role performance in planning and management of watershed development programmes and their participation was also very poor. So efforts are to be taken to enhance their role perception, role performance and participation of women in planning and management of watershed. But their adoption of watershed programmes are high due to the adoption of programmes by the male members of the family.

The farm women had low mass media exposure, contact with extension agency and social participation which are positively and significantly related to role performance and extent of participation. Adequate step should be taken to improve their status on these variables and due recognition should be given to their contribution in the field of agriculture.

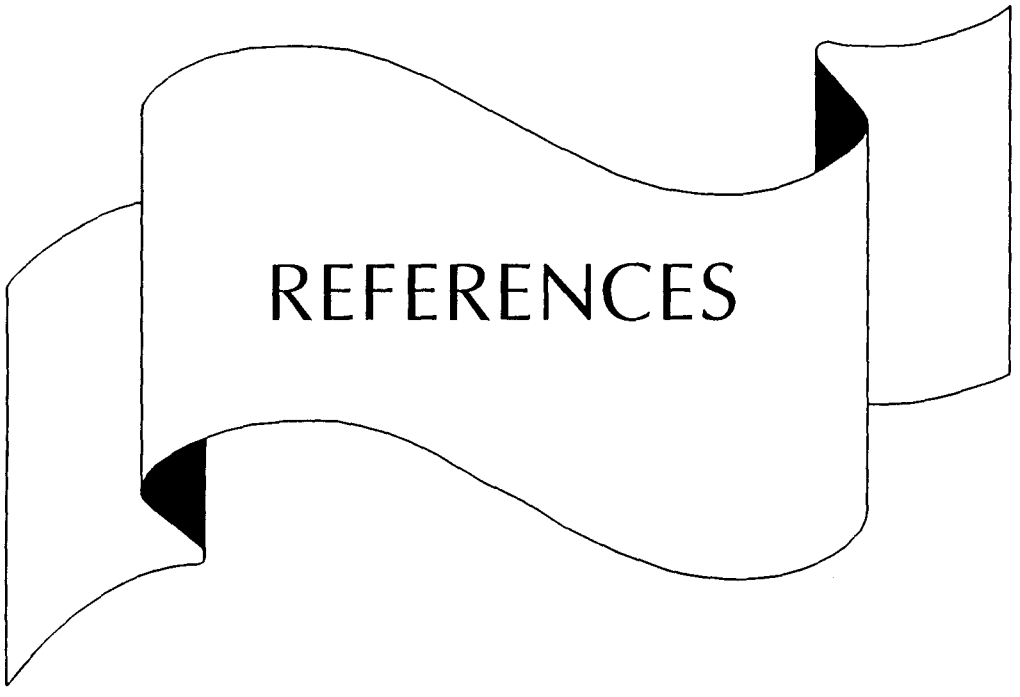
The constraints expressed by the farm women should be looked in to seriously and efforts must be streamlined to solve the constraints.

6.5 Suggestions for future research

Generalization made based on the findings of the study may have only limited application. A comprehensive research project of wider depth and coverage stretching all-over the state need to be undertaken.

For want of time and resources, only limited factors were included for this investigation. Many more variables are therefore required to be studied in this connection.

An evaluative research on the role of the different implementing agencies in implementing the watershed programmes could be taken up to study, the extent of extension effort to implement the programmes.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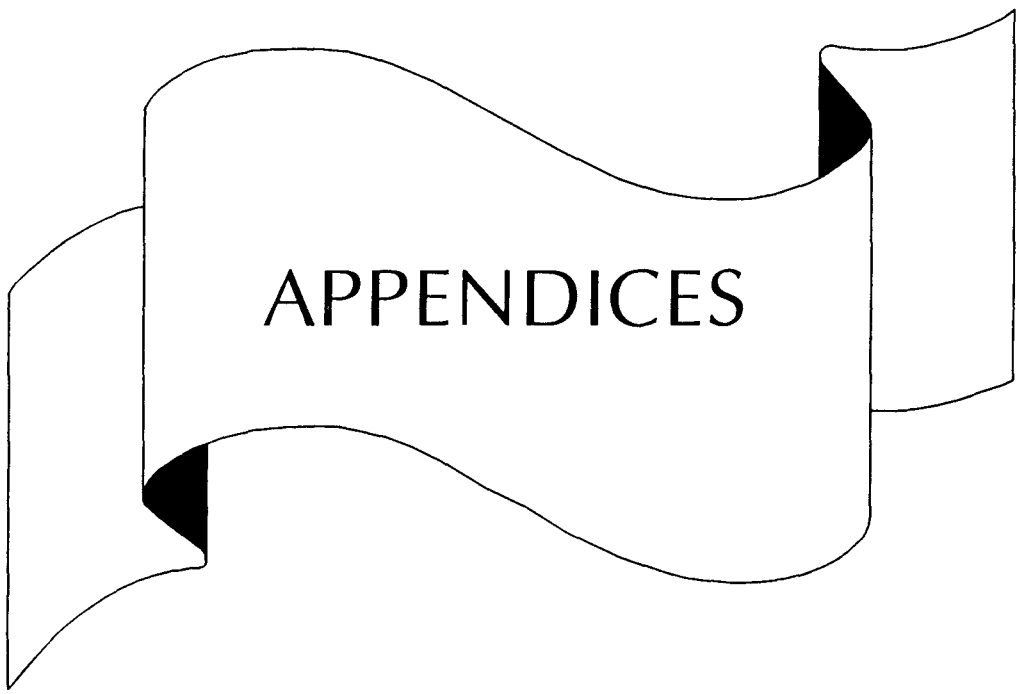
* Orginal not seen


APPENDICES

APPENDIX I

CORRELATION MATRIX

	X_1	X_2	X_3	X_4	X_5	X_6	X_7	X_8	X_9	X_{10}	X_{11}	X_{12}	X_{13}	X_{14}	X_{15}	X_{16}	Y_1	Y_2	Y_3	Y_4
X_1	1.0000																			
X_2	-0.6573	1.0000																		
X_3	0.6137	-0.3895	1.0000																	
X_4	-0.0865	0.1675	0.0265	1.0000																
X_5	-0.0044	0.1319	0.0527	0.5583	1.0000															
X_6	-0.3616	0.5925	-0.1843	0.2057	0.2184	1.0000														
X_7	-0.1976	0.3677	-0.0223	0.1939	-0.0761	0.6119	1.0000													
X_8	-0.1909	0.3059	-0.0649	0.3053	0.2131	0.4728	0.5081	1.0000												
X_9	-0.1988	0.2387	-0.1246	0.1999	0.1596	0.4496	0.4223	0.4692	1.0000											
X_{10}	-0.2114	0.3938	-0.0893	0.1636	-0.0167	0.7011	0.7457	0.4589	0.5188	1.0000										
X_{11}	-0.2756	0.4138	-0.1565	0.1678	0.2026	0.6025	0.2846	0.3959	0.3542	0.3649	1.0000									
X_{12}	-0.2658	0.4618	-0.1088	0.1382	0.1535	0.6321	0.3127	0.3504	0.2365	0.3767	0.5603	1.0000								
X_{13}	-0.2981	0.3957	-0.1072	0.0911	0.1023	0.6428	0.3926	0.3820	0.3181	0.3901	0.5931	0.6566	1.0000							
X_{14}	-0.1825	0.3695	-0.1183	0.0324	0.1050	0.5088	0.3464	0.3662	0.2989	0.3662	0.5222	0.7269	0.5491	1.0000						
X_{15}	-0.2702	0.3774	-0.1378	0.1291	0.1791	0.6183	0.3870	0.3653	0.3336	0.398	0.5733	0.5527	0.7034	0.4619	1.0000					
X_{16}	-0.1275	0.3851	-0.0748	0.1042	0.1592	0.5118	0.4335	0.3422	0.3188	0.4171	0.4337	0.4191	0.3313	0.2950	0.3573	1.0000				
Y_1	-0.1234	0.1005	-0.1043	0.1342	-0.0317	0.4775	0.3861	0.2415	0.3013	0.5068	0.2699	0.3608	0.4438	0.1815	0.4073	0.3422	1.0000			
Y_2	-0.1203	0.0834	-0.1267	0.1430	0.0169	0.4664	0.3665	0.2341	0.3069	0.4870	0.2758	0.3555	0.4199	0.1763	0.3998	0.3245	0.9779	1.0000		
Y_3	-0.1976	0.4024	-0.0643	0.2521	0.1081	0.5980	0.6836	0.5538	0.5019	0.7350	0.3546	0.3195	0.4192	0.3374	0.4604	0.3894	0.4224	0.4000	1.0000	
Y_4	-0.0160	0.2181	0.0461	0.0464	0.1520	0.3891	0.2508	0.2635	0.2567	0.2262	0.2708	0.2940	0.2567	0.3084	0.2892	0.3573	0.1748	0.1442	0.2977	1.0000

X_1 - Age

X_2 - Education

X_3 - Farming experience

X_4 - Annual income

X_5 - Farm size

X_6 - Exposure to mass media

X_7 - Contact with extension agency

X_8 - Training

X_9 - Cosmopoliteness

X_{10} - Social participation

X_{11} - Scientific orientation

X_{12} - Economic motivation

X_{13} - Risk preference

X_{14} - Achievement motivation

X_{15} - Innovation proneness

X_{16} - Attitude towards watershed programmes

Y_1 - Role perception

Y_2 - Role performance

Y_3 - Extent of participation

Y_4 - Extent of adoption

APPENDIX - II

The statements selected for the attitude scale to measure the attitude of farm women towards the watershed programms

Sl. No.	Statements	't' value
*1.	Watershed development programme helps to achieve sustained livelihood to a farmer	3.515
2.	Production and productivity of crop can be considerably improved by watershed development programme	1.079
3.	Watershed development programme can not fully sustain a farmer	1.10
*4.	Maximum utilization of the available resource of the farmer is possible in watershed development programme	3.53
5.	Production and productivity of livestock enterprise can be considerably improved by watershed programme	1.036
6.	Women folk lacking technological know how can not adopt watershed programme	1.1
*7.	Resource poor farmers can not adopt watershed programme	2.10
8.	Family labour can be affectively utilized in watershed programme	0.23
9.	Absolute gain in terms of economic returns from watershed programme is low	0.418
10.	Supply of planting material under watershed programme is helping the farmer to get more income	1.51
11.	Watershed programme of the Agriculture Department could not create any impact among the farm families	0.55
12.	Supply of planting materials under watershed programme is not helping the farmers to get more income	1.19

Sl. No.	Statements	't' value
13.	The conservation measures implemented under watershed programme are not practical in the field conditions	0.414
14.	Various project avtivities under watershed programme are not according to the felt needs of the beneficiareis	0.88
*15.	Watershed development programme helps to reduce heavy crop losses	3.43
*16.	Implementation of watershed programme encourage corruption	3.33
17.	Watershed programme is mere wasteful exercise	0.818
*18.	Watershed development programme is a blessing to farmers	1.98
*19.	There is a little work and more propaganda made about the watershed development programme	2.76
*20.	Watershed development programme should be stopped	1.85
*21.	Watershed development programme is the best scheme implemented by the Agriculture department for the agricultural development of farm families	1.97
22.	Watershed development programme should be continue	0.88
*23.	Watershed development programme of the agriculture department does not provide opporutunities of income and employment generation to the farm families	2.61

* Selected statements

APPENDIX - III

DEPARTMENT OF AGRICULTURAL EXTENSION
COLLEGE OF AGRICULTURE, VELLAYANI

Role of Farm Women in Planning and Management of Watershed

INTERVIEW SCHEDULE

Date :

Respondent No. :

PART - A

1. Name of the respondent :

2. Address :
   House Name & District

3. Age (Completed years) :

4. Educational status Illiterate :
   Can read only
   Can read and write
   Primary school
   High school
   College and above

5. Farming experience :
   (Indicate the number of years of experience as a farmer)

6. Annual Income :

   Income from farming :

   Other sources :

7. Farm size Acre Cent

   Irrigated

   Rainfed

8. Exposure to mass media

Kindly indicate the frequency of exposure to the following mass media.

Mass media	Frequency of exposure				
	Two or more times a week	Once a week	Once a fortnight	Once a month	Never
a. New paper					
b. Television					
c. Radio					
d. Farm magazines					
e. Other literature on agriculture					

9. Social participation

Are you a member / office-bearer of any social organization

Institute	Member / Office bearer
a. Panchayat	
b. Co-operative society	
c. Youth club	
d. Farmers forum	
e. Mahila samajam	
f. MLA / MP	
g. Watershed committee	
h. Watershed committee	
i. Any other specify	

10. Contact with extension agency

How often do you contact the following personal

Extension agency	Frequency			
	Once a week	Once in a month	Occass-ionally	Never
a. Agricultural Assistant				
b. Agricultural Officer				
c. Agricultural Scientist				
d. Dairy Extension Officer				
e. Any other (specify)				

11. Scientific Orientation

Indicate your degree of agreement with the following statements

Statement	Agree	Undecided	Disagree
1. New methods of farming give better result than the old methods			
2. The way of farming by our forefathers is still the best way to farmers as on today			
3. Even a farmer with lot of farm experience should use new methods of farming			
4. A good farmer should experience with new ideas in farming			
5. Though it tkes time for a farmer to learn new methods in farming, it is worth efforts			
6. The traditional methods of farming have to be changed in order to raise the standard of living of a farmer			

12. Economic motivation

Here are some statements. Please indicate the degree of agreement / disagreement or undecidedness about each of the following statements.

Statements	5 SA	4 A	3 UD	2 DA	1 SDA
1. A farmer should work towards higher yields and economic profit					
2. The most sucessful farmer is one who makes more profit					
3. A farmer should try any new farming idea which may help his to earn 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 can not be defined in economic terms					

13. Cosmopoliteness

1. Have you ever visisted the neighbouring Village / Town

Yes / No

If yes

a. How often do you visit the town

Most frequent / Frequent / Sometimes / Rarely

b. Purpose of visit

Agricultural / Personal / Entertainment

14. Risk preference

Please give your degree of consensus to each of the following statements

Statements	5 SA	4 A	3 UD	2 DA	1 SDA
1. A farmer should grow large number of crops to avoid greater risk involved in growing one or two crops					

Statements	5 SA	4 A	3 UD	2 DA	1 SDA
2. A farmer should rather take more of a chance in making a big profit than to be content with a smaller but less risky profit					
3. A farmer who is willing to take a greater risk than the average farmer usually do better financially					
4. It is good for a farmer to take risks when he know his chance of success is fairly high					
5. It is better for a farmer not to try new methods of farming unless most of other famers have used it with success					
6. Trying an entirly new method in farming by a farmer involves risk but it is worthy					

15. Training

Have you undergone any training

Yes / No

Type of training	No	Duration
a. Subject matter (Specify)		
b. Skill training (Specify)		

16. Achievement motivation

Please give your degree of consensus to each of the following statements

Statements	5 SA	4 A	3 UD	2 DA	1 SDA
1. One should enjoy work as much as play					
2. One should work like a slave at every thing, one undertakes unless he is satisfied with result					
3. One should have determination and driving ambition to achieve certain things in life even if these qualities make one un popular					

Statements	5 SA	4 A	3 UD	2 DA	1 SDA
4. One should succeed in his occupation even if he has been neglectful of his family					
5. Work should come first even if one can not get rest					
6. Even when one's interest are in danger, he should concentrate on his job and forget his obligation to others					
7. One should get difficult goals for one self and try to reach them					

17. Innovation Proneness

There are three sets of statements from each set select two statements one you must agree and another one you must disagree

Statements	Agree / Disagree
1.a) I try to keep myself up to 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 new farm practices	
c) Some how I believe that the traditional ways of farming	
3.a) I am cautions about trying a new practice	
b) After all our fore fathers 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 they are promising I would surely like to adopt them	

18. Attitude of Farmers towards development programme

Indicate you degree of consensus with the following statements

	SA	A	UD	DA	SDA
1) Watershed development programme helps to achieve sustained livelihood to a farmer					
2) Maximum utilization of the available resource of the farmer is possible in watershed development programme					
3) Resource poor farmer cannot adopt watershed development programme					
4) Watershed development programme helps to reduce heavy crop losses					
5) Implementation of watershed development programme encourage corruption					
6) Watershed development programme is a blessing to farmer					
7) There is a little work and more propaganda made about the watershed development programme					
8) Watershed development programme should be stopped					
9) Watershed development programme is the best scheme implemented by the agricultural department for the agricultural development in our state					
10) Watershed development programme of the agricultural department does not provide opportunities of income and employment generation to the farm families					

PART - B

I. Role perception and performance in watershed development programme

Statements	Role perception			Role performance		
	Very Important	Important	Less Important	Most Frequently	Frequently	Rarely
Agriculture						
1. Selecting the crops						
2. Deciding the varieties to be grown						
3. Deciding the cropping pattern to be adopted						
4. Deciding the conservation measures to be adopted						
5. Collecting planting materials						
6. Transporting the seedlings						
7. Preparation of land for planting the seedlings						
8. Taking pit						
9. Planting the seedlings						
10. Manuring						
11. Watering						
12. Pruning						
13. Weeding						
14. Thinning and gap filling						
15. Plant protection						
16. Supervision of hired labour in the field						
17. Harvesting						
18. Processing						
19. Marketing						
20. Contour bunding						
21. Terracing						
22. Planting grass on bunds						

Statements	Role perception			Role performance		
	Very Important	Important	Less Important	Most Frequently	Frequently	Rarely
Animal Husbandry						
23. Deciding the type of breeds to be maintained						
24. Number of animals to be maintained						
25. Type of feed to be given						
26. Type of shed to be constructed						
27. Whether to inseminate the animals or not						
28. How and where to market the produce						
29. Maintenance of cattle shed						
30. Feeding animals						
31. Case of sick animals						
32. Inseminating the animals						
33. Cultivating fodder						
34. Milking animals						
35. Management and care of poultry birds						
36. Goat rearing						
37. Selling of livestock produce						

II. Extent of participation in planning and management of watershed programme

	Always	Sometimes	Never
1. Have you participated in the survey conducted for starting the watershed project			
2. Do you participate in the preparation of project out line			

	Always	Sometimes	Never
3. Do you participate in any agricultural training programme under watershed programme			
4. Have you ever participated in the melas and exhibitions organised under watershed programmes			
5. Have you ever participated in deciding the programme to be implemented in your watershed			
6. Have you ever been a 'mitra kisan' in watershed development programme			
7. Have you involved in budget discussions of your watershed			
8. Have you participated in the selection of beneficiaries of watershed development programme			
9. Have you ever involved in the evaluation and monitoring of watershed development programme			
10. Have you contributed by way of suggestions for the improvement of watershed programme			

III. Extent of Adoption of watershed programmes

Soil Conservation

1. Total area that can be brought under soil conservation		Acre	Cent
2. Area actually brought under contour trenching	-	Acre	Cent
3. Area under contour teraccing	-	Acre	Cent
4. Area brought under contour bunding	-	Acre	Cent
5. Area brought under crop rotation	-	Acre	Cent
6. Area under strip cropping	-	Acre	Cent
7. Area covered by grass on bunds	-	Acre	Cent
8. Area under vettivar crop	-	Acre	Cent

Production system

9. Total area that can be brought under mixed cropping	-	Acre	Cent
10. Actual area brought under mixed cropping	-	Acre	Cent

11. Have you adopted Agro-forestry, tree planting - Yes/No

If yes, No. of plant

12. Are you using Bio-fertilizers - Yes/No

Crops	Area	Quantity used
1		
2		
3		

13. Do you have kitchen garden - Yes/No

If yes,

Crop	Variety	Area	Fertilizer N	P	K
1					
2					
3					

Diseases and Control measures

Live stock

14. Do you have poultry - Yes/No

Local No. -
Improved breed No. -

15. Do you have goat - Yes/No

No. of goats - Local Improved

16. Do you have cattles - Yes/No

Local No. -
Improved -

17. What sort of housing system you have adopted to shelter the animals

18. Have you given slopping to the floor - Yes/No

19. Are you feeding the animals with vitamins and minerals - Yes/No

20. Have you ever had your animals inseminated certificially - Yes/No

21. Have you ever got your animals vacinated against diseases - Yes/No

22. Have you raised any fodder crops in your field - Yes/No

If yes, Variety	Area	Fertilizer N	P	K
1				
2				
3				

Part - C

Constraints

IV. The following are the constraints faced by farm women in participation and adoption of watershed development programmes please give Yes or No of these constraints

Yes/No

1) Lack of technical guidance

2) In-adequate training

3) Watershed development programme are not need oriented

4) Non-availability of farm literature on watershed programmes

5) Non-availability of quality planting materials

6) Agricultural inputs are not available in time

7) Inadequate credit facilities

8) Watershed development programmes are not so remunerative

9) Watershed programme are not location specific

10) Delay in implementation of programme

11) Lack of marketing facilities

12) Lack of publicity

13) Procedural complexities in getting benefits

14) Political interference in selection of beneficiaries under watershed development programme

15) Financial assistance given under watershed programme are not sufficient

16) In-adequate lingage between 'mitra kisan' and farmers

17) Non-availability of quality fodder seeds

18) Non-availability of stones to construct contour bunds

19) Other items, if any

ROLE OF FARM WOMEN IN PLANNING AND MANAGEMENT OF WATERSHED

By

SHAJU THOMAS B.Sc.(Ag.)

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

DEPARTMENT OF AGRICULTURAL EXTENSION
COLLEGE OF AGRICULTURE
VELLAYANI, THIRUVANANTHAPURAM

1998

ABSTRACT

The present study under the tittle "Role of farm women in planning and management of watershed" was under taken to assess the role perception and role performance of farm women in planning and management of watershed, extent of participation of farm women in planning and management of watershed, extent adoption of watershed programmes and the constraints faced by the them in participation and adoption of watershed development programme. Thirty farm women each were selected from each selected watersheds of Kottayam and Kollam districts, thus forming a sample of 180 respondents. Data was collected using interview schedule and suitable statistical technique were employed in the analysis of data.

The frequency distribution of farm women with respect to role perception, role performance and extent of participation was found high in the low group. Where as more number were seen in the high category with respect to extent of adoption.

The distribution of farm women with respect to their personal and socio-psychological variables revealed that majority were in the high group in the case of age, education, annual income, cosmopoliteness, economic

motivation, risk performance, innovation proneness and attitude towards watershed programmes and in low group the variables like Farming experience, farm size, exposure to mass media, contact with extension agency, training, social participation and achievement motivation.

The roles perceived by most of the farm women in watershed planning and management were planting seedlings, watering, weeding, plant protection, supervision of hired labours in the field, harvesting, processing, decision regarding number of animals to be maintained, feeding animals, care of sick animals, management and care of poultry birds and goat rearing as very important.

The roles performed by the farm women in planning and management of watershed were planting seedlings, watering, weeding, supervision of hired labours in the field, harvesting, processing, decision regarding number of animals to be maintained, feeding animals, care of sick animals, collecting fodder, management and care of poultry birds, goat rearing and selling of livestock produce as most frequently.

With respect to extent of participation of farm women in planning and management of watershed was very poor. Except in the case of items like participation by way attendance in training programmes, melas and exhibitions, their participation is almost nil.

The study revealed that majority of the respondents farm women have fully adopted the programmes like agro forestry tree planting, kitchen gardening, poultry rearing, feeding of animals and health care of animals.

The result of correlation analysis revealed that, a positive and significant relationship was found between all the dependent variables except role performance and extent of adoption.

With regard to perception a positive and significant relation was found with the independent variables like exposure to mass media, contact with extension agency, training, cosmopoliteness, social participation, scientific orientation, economic motivation, risk preference, achievement motivation, innovation proneness and attitude towards watershed programmes.

In the case of role performance variables like exposure to mass media, contact with extension agency, training, cosmopoliteness, social participation, scientific orientation, economic motivation, risk preference, achievement motivation, innovation proneness and attitude towards watershed programmes were seen to be positively and significantly correlated.

The result of correlation analysis revealed that, a positive and significant relationship exist between, extent of participation and all the selected characteristics except Farming experience and Farm size.

With regard to extent of adoption a positive and significant relationship was found with the independent variables like education, farm size, exposure to mass media, contact with extension agency, training, cosmopoliteness, social participation, scientific orientation, economic

motivation, risk preference, achievement motivation, innovation proneness and attitude towards watershed programmes.

Lack of financial assistance given under watershed programme, non availability of quality planting materials, non availability of agricultural inputs, dely in implementation of programmes, political interference in selection of beneficiaries under watershed development programme, in adequate training and absence of location specific watershed development programmes were the major constraints faced by the farm women.