Influence of Technology Transfer on Farm Women

BY

Christinal Kamali J.

A THESIS SUBMITTED TO AVINASHILINGAM INSTITUTE FOR HOME SCIENCE AND HIGHER EDUCATION FOR WOMEN (DEEMED UNIVERSITY) COIMBATORE-641 043, IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE IN HOME SCIENCE EXTENSION EDUCATION

MAY 1990

Acknowledgement

ACKNOWLEDGEMENT

The author wishes to express her profound sense of overwhelming gratitude and heartful thanks to **Dr. N.S.Narayanaswamy,** Ph.D., Professor of Home Science Extension Education, Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore, for his valuable guidance and constructive criticism throughout the study.

The investigator records her deep sense of gratitude to **Dr. S. Sithalakshmi,** M.Sc., Ph.D., Head and Professor of Home Science Extension Education, Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore, for the help rendered during the course of this study.

The investigator wishes to place on record her sincere thanks to **Dr. (Tmt.) Rajammal P. Devadas,** M.A., M.Sc., Ph.D., (Ohio State), D.Sc., (Madras), Vice Chancellor of Avinashilingam Institute for Home Science and Higher Education for Women (Deemed University) and Dr. (Tmt.) **Lakshmi Santa Rajagopal,** M.Sc., (Tennesse), Ph.D. (Madras), Dean, Faculty of Home Science, for the permission granted to conduct this study.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF PLATES

LIST OF FIGURES

LIST OF APPENDICES

Introduction

INTRODUCTION

"In order to awaken the people, it is
the women who have to be awakened
Once they are on the move, the household moves,
the village moves and the country moves".

- Jawaharlal Nehru

In India, agriculture is the backbone of the economy. Nearly 50 per cent of the national income of India is derived from agriculture. Agricultural sector helps economic growth by providing markets for manufactured goods in the industrial sector. The agricultural sector stimulates economic growth by increasing the productivity of underemployed people. Thus agricultural sector occupies a pivotal role in the economic development of the country. All sectors of economy in India depend on agriculture (Sankaran, 1984).

Agriculture occupies a place of pride. Agriculture which accounts 48 per cent of the national income is the kingpin of the national economy. It dominates the national scene (Manorama, 1979).

Agriculture is the predominant activity in rural India and it is in this sector that women in villages are primarily engaged in, besides of course managing their homes as women everywhere do. It is estimated that about 78 per cent of active rural women are engaged in agriculture, compared to 63 per cent of men. Raising the operational and managerial efficiency of women on the farms and at home and reducing the drudgery associated with most of these operations are therefore of paramount importance. There is an urgent need to expand rural poor, particularly with regard to women's role in rural activities and to disseminate this information in order to promote greater awareness of women's role in rural activities in society (Devi, 1987).

In India, women of rural areas are exclusively involved in agriculture, the primary sector of economy. Agricultural production is basically a family enterprise and depends to a great extent on the farm women (Bhattacharjee, 1978).

Das et al (1988) reported that the women occupy the most pivotal sector in Indian agriculture and transformation of women in terms of attitude, knowledge, skill and ability is therefore, sine qua non for modernizing Indian agriculture in order to strengthen the economic position of the country.

In any economy women play a prominent role at various levels. They are the backbone of the village economy of rural India. Women take up different works to eke out their livelihood and the majority of the rural women depend on agriculture, which is the major unorganised sector in India (Shobha, 1984).

Kaneda (1981) expresses that the experience of India's economy in recent years has demonstrated quite convincingly that a stable and buoyant agricultural growth is the sine qua non of a strong performance in other sector of the economy.

According to Swaminathan (1985) "some historians believe that it was women who first domesticated crop plants and thereby initiated the art and science of farming. While men went out for hunting in search of food, women started gathering seeds from the native flora and began cultivating those of interest from the point of view of food, feed, fodder, fibre and fuel".

Women play a significant and crucial role in agriculture not only in India but throughout the third world. In addition to outside the home, farm work in which they are actively involved with men, the onus of almost the entire household chores falls on them. But despite the global census as

to their vital role both in the farm and in the household, their importance in and contribution to agriculture is not adequately reflected in the available statistics which perhaps obsecure more than what they reveal and hence the urgent need for a better understanding in this regard.

Agricultural development is a complex process and a challenging one as well. There are four major systems namely, research, extension, support and client, which are supposed to work in harmony to bring about stable and sustained growth in agriculture (Agriculture and Rural Development, 1980).

The extension system consists of change agents, extension personnel belonging to government and non-government agencies who act as links between the research and systems. Besides transferring new technology to the potential users, the extension system is also expected to supply the Research system with feed back about the field problems. The extension system establishes direct contacts with the farmers in person, in groups or through indirect media like newspapers, magazines, leaflets, radio and television (Jaiswal & Arya, 1981).

The majority of small and marginal farmers continue to use old local tools and implements which are slow in operation and cause considerable fatigue and there is drudgery involved in their use.

In order to reduce the drudgery from the farm operation which are mostly done manually, there is a great need for educating the rural women to adopt and use the improved implements. This will help them to increase their work output and efficiency. Hence steps have been taken to encourage such an approach for the technology transfer. Women have better native intelligence and in general a better source of people for technology allows them to inculcate a more casual attitude and acceptance of technology. Trained women can transfer their knowledge to the children and break the technological comprehension gap that exist between the children of development and developing countries in one generation. Let us educate our farm women and train them. Trained women will take care of the development (Perumal, 1987).

A large number of agricultural technologies are available which can be utilised by anybody to his or her advantage. Included among these are high-yielding varieties and their production technologies with resort to line-sowing, nursery raising, depth of sowing, seed treatment, placement of seeds and fertilizers, hoeing and weeding, seed rate and plant protection measures, cropping sequences and mixed farming. However, there are operations like transplanting of paddy, threshing of paddy and dehusking of groundnut in which mainly women are involved. Appropriate technologies for these and many

other such operations can improve the efficiency and productivity of women and reduce their work load and drudgery.

The appropriate technologies make the farm women's tasks easier, more enjoyable, less burdensome, more profitable and more productive without displacing them from the labour market (Prasad et al, 1988).

Although, farm women have a great potential for transfer of agricultural technology, their services are not at all being utilised at present. As suggested by the author of Training and Visit system, Dr. Daniel Benor women should constitute a certain per cent of the contact farmers in each Village Extension Worker's Circle. However, this suggestion has not been given effect to except perhaps in a few cases here and there. Some studies and evaluation reports have also underlined the need for use of farm women's services for effective transfer of technology to their fellow farm women. In view of the fact that woman to woman transfer of technology has decidedly more positive effect, efforts should be directed towards utilising the services of farm women.

In Training and Visit System, the village-level extension workers are given regular training in production methods, which they disseminate among the farm community through selec-

ted contact farmers by visiting them at their fields. the methodology provides for a management system which can assure delivery of expert know-how in time for the operation. The fundamental objective of this extension strategy is to promote adoption of technology by the farmers at a faster rate so that the existing gap between research and extension is reduced, thus forcing research to keep pace with the changing needs of farmers (Jaiswal & Arya, 1981).

Transfer of technology in agriculture is a good deal more complex than is expressed by the statement "Given the inputs 'I', production 'P' through technology 'T' can be ensured under the constraints posed by the non-manipulative variables of agricultural production", (Singh, 1981).

Transfer of technology is sine qua non for transformation of Indian agriculture to a modernized one. Participation of women in agriculture has been though recently recognised but the 'invisible workers' have yet to be involved in the process of transfer of technology. There is already a big gap between the transferable technology and transferred technology as far as the men beneficiaries are concerned. Further, the amount of technology transferred to women though being equal partner from hoe agriculture to most modernized agriculture and from seed sowing to harvesting, is very insignificant.

The result is that approximately half of the participants involved in the process of agriculture have been left behind in the darkness of ignorance. An indepth understanding of the process of transfer of technology and its impact on farm women will help in formulating appropriate strategy for streamlining the transformation of agriculture to a modernized one (Prasad, et al, 1988).

Title of the Present study

Influence of Technology Transfer on Farm Women.

Definitions of the terms in the title

Technology

The basic aims in the application of technology include increasing productivity, reducing the labourousness of work, improving the quality of produce and products and diversifying outputs (Stephens, 1988).

Technology Transfer

The appropriate technology passed on from technical staff on Farmer's Training Centres and Research Stations to selected clients.

vi) To find out the various sources of information regarding Agricultural technologies.

Limitations of the study

Due to the limitation of time and lack of finance, lack of transport facilities and convenience, investigator confined her study to Periyanaickenpalayam block of Coimbatore District.

It is hoped that the findings of the study will help to improve the communication credibility of the different agencies and lead to the dissemination of the new technologies of farm operations on a wider scale, among the farmers and agriculturists.

Review of Literature

II REVIEW OF LITERATURE

This review pertains to the following aspects:

A. Role of Women in Agriculture

B. Transfer of Farm Technology

C. Information Source Utilization at Adoption

D. Factors Affecting Communication Behaviour

E. Extent of Adoption of Farm Technology

F. Research studies Related to Improved practices and Technologies in Agriculture.

A. Role of Women in Agriculture

In traditional village community, the women played a distinctive and accepted role in the process of earning a livelihood by participating in both production and marketing of agricultural and handicraft products. In most part of the country, the job traditionally done by women are generally transplanting, sowing, weeding, harvesting, winnowing and threshing. Nearly 79.40 per cent of all economically active women were engaged in agriculture compared to 63.30 per cent of men. Of the total female workers, 46.20 per cent were classified as agricultural labourers and 33.20 per cent as cultivators (National committee on status of women, (1974).

Chakravarthy (1975) conducted a study in some villages of Haryana to see the role performance of women in the farm families. The study revealed that an active farm women spent eight to nine hours on the farm during the peak agricultural season and three to four hours on taking care of the cattle and on household chores.

Gopal (1975) viewed that some working ladies used to do agricultural work at the farms of their husband's from morning till evening. They used to attend to too many odd jobs. For example, taking meals to their husbands, drying of grains and grinding.

Mulay et al (1974) examined farm work done by women folk in Kanjhawala block of Delhi and observed that majority of women contributed substantially towards the labour-force required on the farm throughout the year except tilling, seeding and carrying the produce to the market which were exclusively the jobs of the men. Women did weeding, harvesting, threshing, winnowing, irrigating and carrying the produce and fodder from the field to home.

Devadas (1975) opines that in modern agriculture, women shared a number of farm operations with men. Activities such as seed selection, storage, sowing behind the plough, planting,

Savarimuthu (1981) stated that farm women participated and supervised to the extent of 75 per cent, activities related to seed and sowing followed by other agricultural practices 44.17 per cent), to irrigation (23.33 per cent), to plant protection (17.5 per cent) and manuring (16.6 per cent) in that ordered sequence.

Achanta (1982) says that activities like transplanting of rice, weeding of crops, scaring birds, sowing behind the plough, reaping, winnowing, storage of seeds and food grain, preparation of compost manure pits and most of other farm operations were mainly carried out by farm women. In many places entire management of livestocks is done by the women.

Jain and Chand (1982) reported that women were spending a few hours each day on gainful activities such as picking groundnut, cutting grass, winnowing and threshing crops and working as domestic servants and others, in selected districts of West Bengal and Rajasthan.

Devi and Reddy (1984) found that rural women normally adjust the food preparation, child care and other household activities in such a way that they would not cause any interruption to their participation in harvest and pre-sowing

and sowing activities. Harvest and post-harvest role emerged as the first rank followed by pre-sowing and sowing, allied agriculture and inter-cultivation which indicated that the harvest role was expected to be performed mostly by the rural women farm management compared to other roles. During peak periods of agricultural operation, home tasks are shifted to the backward and the farm women experiences are almost, insurmountable difficulty in accomplishing both types of tasks satisfactorily, since little work was expected on role expectation and role performance.

Govind (1984) observed that higher percentages like seed treatment, sowing, manuring, intercultivation, harvest and post-harvest technology involvement of farm women in all livestock activities was more compared to their involvement in crop husbandry practices.

Sirohi(1985) states that the farm operations practised by one or more of the rural women are sowing, irrigation, plant protection measures, harvesting, threshing and storage.

Viriyasini (1986) opines that rural women play important role in agriclutural production but have been overlooked in the training programmes on modern methods of agricul-

tural production. They need specific technologies to improve agricultural prooductivity and enhance their managerial skills to ensure them of decent incomes.

Pandy et al (1986) reported that rural women had supportive role in most of the agricultural decisions. They played quite an active role in the purchase of livestock, fertilizer and selection of market.

Singh (1989) stated that women worked along with the male member of the household in sowing seeds, transplanting, watering the fields, harvesting the crops, poultry keeping and also helping in family enterprises. They do all this in addition to their normal domestic works as a housewife and thus they have been playing a dual role in the society.

Awasthi (1982) conducted a study in a village from Jammu tehsil and found that women of all communities participated in agriculture. Among the scheduled castes, carpenters and Gujjars, 100 per cent women made a contribution to agricultural activities. For Brahmin and Rajput women, participation in agricultural activities was between one to four months while the Gujjar women were tied to land for longer period. A large number of women (37 out of 45) were found to be looking after the dairy.

Agnihotri (1983) studied the contribution of female workers in the farm sector in Una district of Himachal Pradesh and noticed that 63 per cent of women were participating in work force and 90 per cent of these were associated with agriculture.

Devi and Reddy (1984) studied the role expectation and role performance of farm women in selected villages of Krishna district, Andhra Pradesh. As regards expected roles of the rural women, harvest and post - harvest role emerged as the first rank, followed by presowing and sowing, applied agriculture and intercultivation. Performance in all the agricultural activities was higher in case of low economic category women and women of high and medium economic categories mostly performed allied agriculture activities. Women belonging to small farm holdings, lower caste, with low socio-economic status, with less urban contact were participating more in agricultural activities.

Mies (1984) in her study of three villages in Andhra Pradesh observed that women did more field work than men. In one of these villages 96 per cent of women were engaged in agricultural work. She opined that women are not working less than before the introduction of improved agricultural technologies but that for social reasons their work was no longer defined as work.

impact of technology on our outlook, life styles, social, cultural, political and economic structures. He further observes that technology is to be judged by its contribution to social and economic development".

Sadhu and Singh (1983) stated that the technology plays a pivotal role in any production enterprise. The nature of technology determines the magnitude of success in raising higher yields from any production effort. Farming has always adopted a technology suited to its stage of development and the nature of requirements. Technology has played a significant role in strengthening the farmer's hold on agricultural resources and enable him to reap better harvests. New technology cannot produce results of its own, unless it is adopted by the farm population. Adoption of new technology shall further depend upon the rate of technical progress. Thus, in order for new technology to become acceptable, technical change must occur side by side. The process of transfer of farm technology as given by Jaiswal and Arya (1981) is shown in Figure-1.

Sharma (1984) quotes that new farm technology is not an abrupt development. Changes have been occuring in farm technology on continuous basis. Since farm technology consists of a number of components, changes have occured

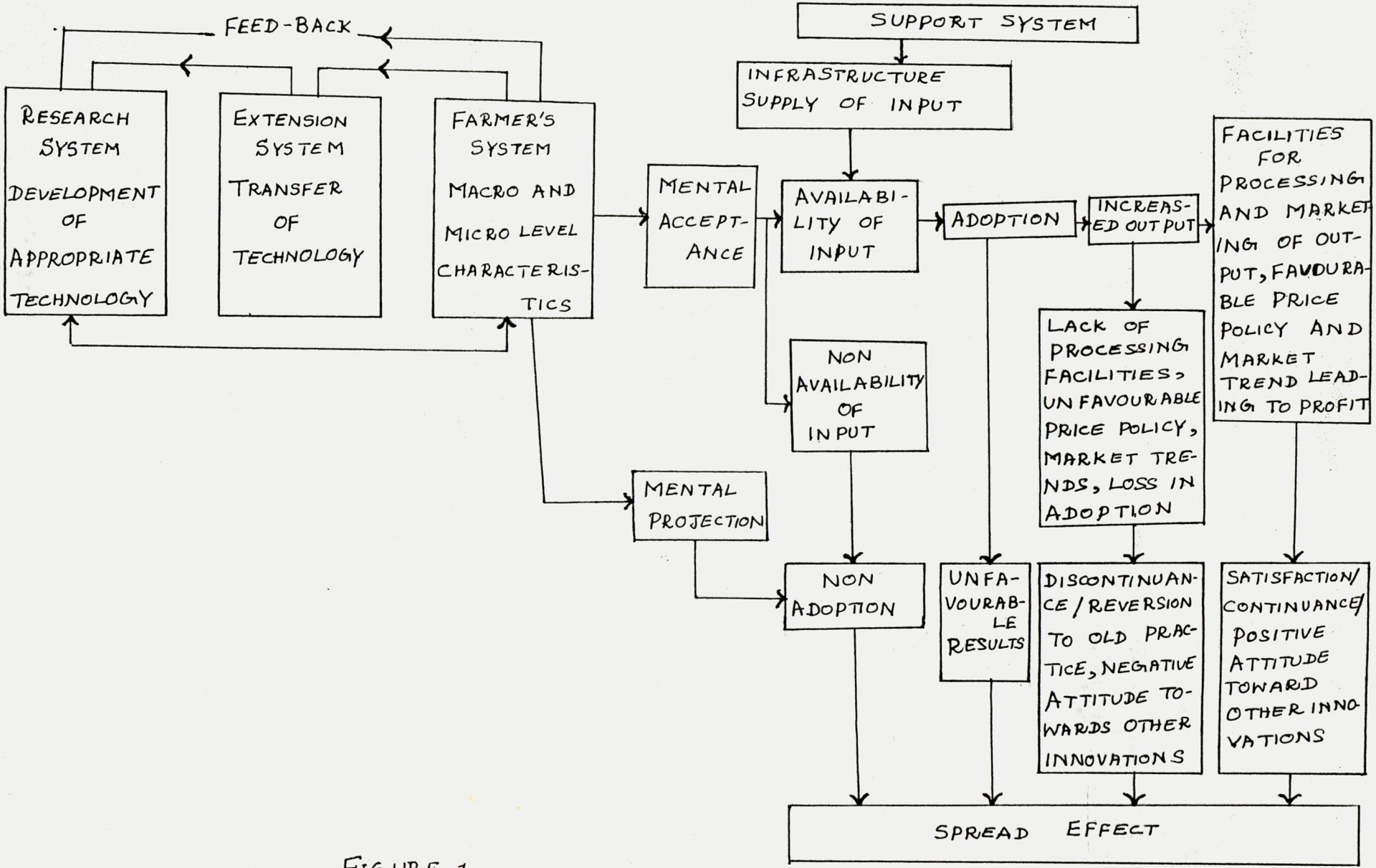

FIGURE-1

PROCESS OF TRANSFER OF FARM TECHNOLOGY

Component-wise in a gradual manner. The world farm technology is held to have undergone change in the following chronology:

Changes in farm machine technology, changes in animal production technology, changes in plant production technology, changes in land use technology and changes in food and fibre processing technology.

Sangle (1984) viewed that the empirical evidence suggest that due to new agricultural technology, there have been changes not only in agriculture but also in the socio-economic relations as a consequence of technology use, (Figure-2).

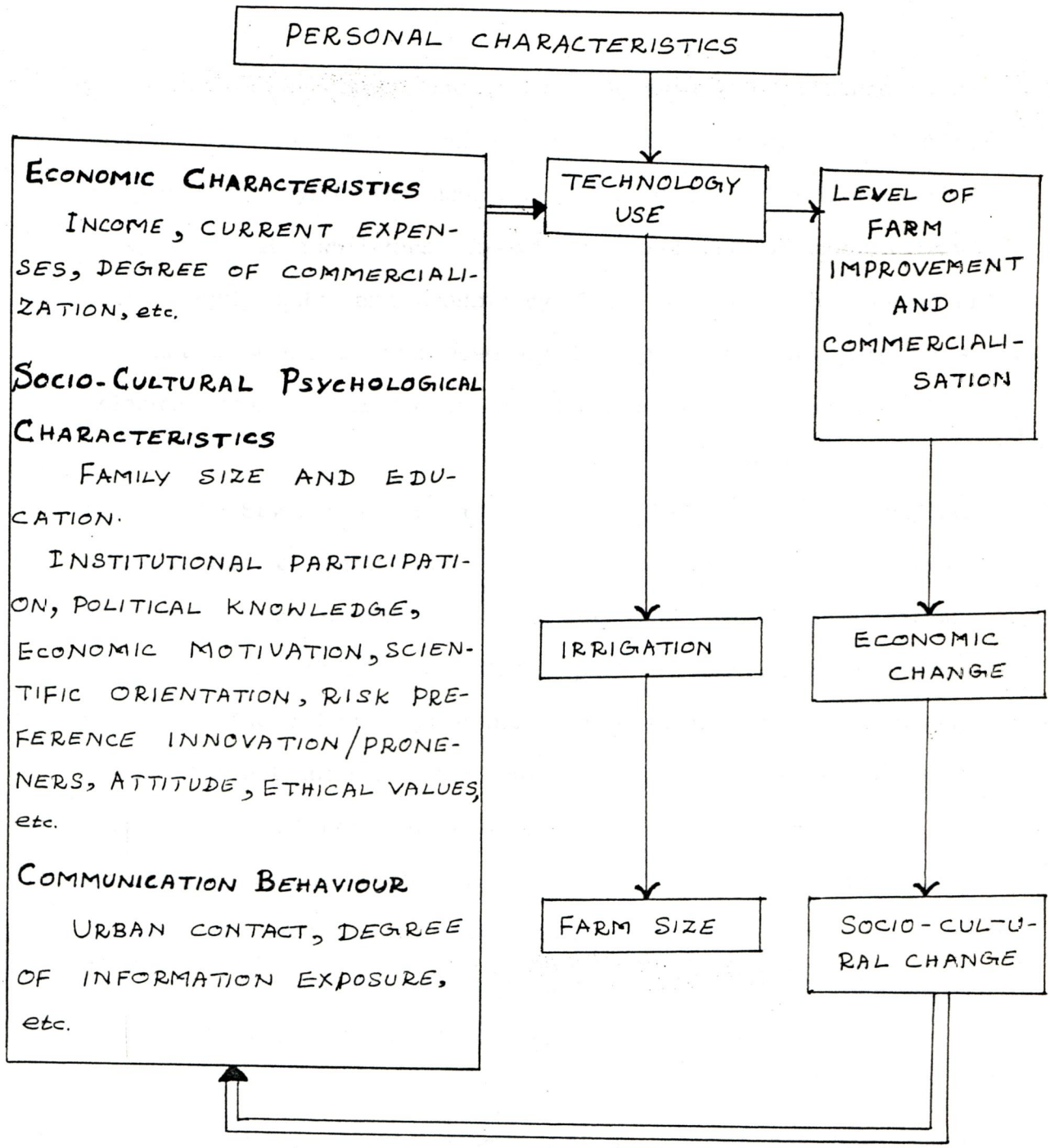

FIGURE-2

CONCEPTUAL MODEL OF TECHNOLOGY USE AND RURAL CHANGE

to lab to land programme called as 'Experimental group'. Another matching 100 farm women of two villages which were not included in the lab to land and transfer of total farm technology programmes were selected as 'control' group. The study concluded that the knowledge regarding the farm practices was higher in case of experimental group. The study finally indicated that though the farm women from villages, where technology is being transferred are on the forward march, still they have to go a long way to become a productive force.

Sangle (1984) found that the tranditional agriculture is not an effective technique for adequate food production required for India's ever growing population. Serious efforts have, therefore, been made since independence and especially during 1960s to transform India's traditional agriculture into a commercial one. Agricultural development is intimately related with the application of science and technology in farming. Therefore, increase in agricultural production and the economic and social benefits are directly dependent on the extent to which farmers use the improved technology.

C. Information Source Utilization at Adoption

Perumal (1979) reported that for adopting high yielding varieties of paddy, farmers frequently utilized the neighbourhood agencies followed by government agencies.

Gupta (1983) opined that interpersonal contact between extension workers and farmers was essential for affecting attitudinal and behavioural changes leading to the acceptance, adoption and continuance of the technology.

Somasundaram (1986) reported that reminding circulars, new stories and radio talk about action were useful methods in ensuring adoption of the technology by farmers.

Selvakumar (1988) concluded that 'Past experience', 'leaflets', 'farm announcement on AIR', 'Sharing the experiences of friends and neighbours' and 'Pamphlets' was the pattern of utilisation of information support for contact farmers, while 'past experience', 'discussion with pesticide dealer' and 'sharing the experience of friends and neighbours', 'farm announcement on AIR', leaflets' and 'Sharing the experiences of relatives' was the same for non-contact farmers for their adoption of whitefly control measures.

Vijayaragavan (1976) inferred that in the information input, farm broadcast, block officials, gramsevaks, friends and neighbours and campaign were the most utilised sources by gardenland farmers whereas friends and neighbours and gramsevaks emerged as the most utilized source by dry land farmers.

Balasubramanian (1976) reported that the client system in general, all utilized 'formal sources' for getting information about high yielding varieties followed by informal sources and mass media'.

Rajendran (1980) inferred that the neighbours, friends, relatives and progressive farmers were the most frequently used channel, followed by campaign and farm and home visits and lastly radio, poster, chart and films were mostly used for getting information with regard to improved seed practices of I.R. 20 paddy by the small farmers.

Kulhari (1981) noticed that the trainers mostly used lecture methods, lecture cum-group discussion and literature support to transfer the latest know-how to the Agricultural Extension Officers and village extension workers.

Balasubramanian (1976) stated that the stored information was transferred by leaflets' and 'simple package of practices' followed by 'posters' and 'slogans', 'radio', 'talk' and 'cyclostyled materials' for dissemination into lecture text of a popular language (73 per cent) and preparing charts and other visual aids (35 per cent) were being followed by village level workers.

Sridhar (1978) stated that the extension personnel transmitting the transformation into lecture notes, success stories, charts, leaflets and hand-outs to suit their clients and the same information was transferred mainly through farm and home visits, office calls, group meetings, demonstration and leaflets.

Panner Selvan (1978) found that cent per cent farmers of both progressive and non-progressive village utilised gramsevaks as their information source. Radio and agricultural journals were used more in Progressive village than in non-progressive village.

Velluchamy (1979) observed that more than 80 per cent of small and marginal farmers disseminated the information to their 'relatives', 'friends', 'neighbours' and those who come and seek.

D. Factors Affecting Communication Behaviour

Thangamani (1972) observed that age had no significant association with the utilisation of information sources.

Nanjaiyan (1973) pointed out that the age of the farmers seemed to have no bearing on the utilisation of resources and channels.

Reddy (1976) opined that the age had no relationship with the communication behaviour of the village level worker.

Vijayaragavan (1976) found that the age had significant relationship with information input and processing, but it had no significant relationship with information output of garden land farmers. In respect of dryland farmers, age had no relationship with their information input, processing and output pattern.

Prasad and Sinha (1971) reported that education seemed to have significant relationship with the use of information sources.

Darbarilal (1972) found that education had significant correlation with the communication behaviour.

Ambastha (1974) observed that education had no significant relationship with information input and also with information processing pattern of farmers.

Kalamegam (1975) concluded that the education had a significant and negative bearing in the utilization of personal localite sources in the progressive and to some extent in less progressive villages.

Vijayaragavan (1976) stated that education had no significant relationship with information input, processing and output pattern of dry land farmers, whereas it had significant and positive relationship with the information input and output pattern but no significant relationship with processing pattern of gardenland farmers.

Reddy (1976) inferred that education had no significant relationship with village level worker's communication behaviour.

Gnanasekaran (1978) found that there was a positive and significant relationship between education and information seeking behaviour of both paddy and millet growing neo-marginal farmers.

Somasundaram (1976) found that occupation had no significant association with the use of personal cosmopolite, personal localite and impersonal cosmopolite channels in both adopter and non-adopter small farmers.

Danda (1972) reported that communication behaviour of farmers was directly related to size of holding. He further stated that the farmers with large size holdings had higher communication behaviour than farmers operating small sized.

Nanjaiyan (1973) indicated that farm size had no significant association in utilization of source and channels.

Kalamegam (1975) inferred that the personal localite sources were used to a greater extent by the farmers with medium sized holdings in the progressive village and the farmer with small sized holdings in the non-progressive villages.

Vijayaragawan (1976) observed that social participation had significant and positive relationship with information inputs, processing and output pattern of dryland farmers. Gnanasekaran (1978) inferred that there was no significant relationship between social participation and information seeking behaviour of both paddy and millet growing neomarginal farmers.

E. Extent of Adoption of Farm Technology

Perumal (1970) found that low cost of cultivatin as one of the motivating factors which influenced adoption of hybrid maize. Anbalagan (1974) found that high yield and more net profit were the factors which promoted the farmers to adopt the package of practices for high yielding varieties of paddy.

Janakiramaraju (1978) reported that socio-economic status had positive relationship with the extent of fertilizers in farmers of both irrigated and non-irrigated areas.

Anbalagan (1977) observed that the recommended practices of correct spacing, fertilizers schedule and plant protection measures were adopted by 40, 27 and 49 percentages of farmers respectively.

Somasundaram (1976) pointed out that, there was a wide variation in the extent of adoption of small farmers on all practices except seed rate and area under nursery.

Gnanasekaran (1978) expressed that there was a wide variation in the extent of adoption of all practices among paddy and millet growing neo-marginal farmers.

Manivannan (1980) observed in general, majority of the sunflower growers had medium extent of adoption of the selected package of practices.

Kulhari (1981) pointed out that the level of adoption of recommended practices of paddy and wheat crops by training and visit system was significantly higher than farmers

outside the system. There was significant increase in level of adoption of paddy and wheat technology by both contact and other farmers during the period of training and visit system.

Venkidusamy (1977) concluded that in general, adoption was less in irrigation, application of fertilizer and plant protection, and in these three practices the adoption in the project block was more than the non-project block.

Vijayaraghavan (1977) indicated that there was a wide variation in the extent of adoption of IR 20 paddy in all the practices amongst marginal farmers.

Singh (1981) observed that the level of fertilizer consumption and adoption of high yielding variety seeds was positively related with assured irrigation facilities. Shankar (1979) reported positive relationship between literacy and adoption level of farmers.

Kavia and Prasad (1982) reported that the farmer's knowledge of agricultural technology was positively related with their adoption of agricultural practices.

Perumal and Manon (1981) mentioned that 69 per cent of the Village Extension Workers were not able to influence the farmers to adopt the recommended farm practices. They further stated that their poor economic condition and storing input costs were the major limiting factors that prevent the adoption of recommended farm practices by farmers.

Andhra Pradesh Agricultural University (1979) found that, the adoption of non-monitary innovation like split doses of fertilizers, correct use of pesticides, proper plant protection and others is one of the major contributions of the system.

Pandey (1980) reported that the adoption of high-yielding varieties, timely sowing and transplanting, closer spacing and fertilizer application of paddy was quite satisfactory. It was found moderate in the adoption of recommended seed rate. The adoption of seed treatment with chemicals, use of plant protection measures and chemical weed control and nursery management were found not much encouraging.

Perinbam (1981) states that the extent of adoption of practices was more in the farmers coming under Training and Visit System than those from outside the system. Practices of non-monitary type are found to have been adopted by large number of farmers.

F. Research Studies Related to Improved Practices and Technologies in Agriculture in India

Singh and Bhattacharya (1988) conducted a study on labour saving technologies and pointed out the following important technologies to save labour:

1. Zero or minimum tillage replacing conventional tillage,
2. Direct seeding in place of transplanting,
3. Use of herbicides replacing manual weeding,
4. Use of improved farm implements/equipments instead of manual operations.

   a) Seed-cum-fertilizer dril, b) Transplanter, c) Reaper d) Threshers / winnowers, e) Dryers, f) Power tillers, g) Sprayers / dusters, h) Rotary wheel / hoe / paddy weeder and i) Bird scaring devices.

Sanghi (1988) has pointed out, on an average of 9.6 per cent houses are women headed in India. Singh et al (1988) has pointed out the women managed farms, suffer from soil erosion, difficulty in land preparation, control of perennial weeds, management of pesticides keeping in view, the above problem and need of such farms, the following specific techniques for crop hunbandry are relevant.

- Zero tillage system to eliminate the need for the ploughing operation.
- Cultivation of dryland vegetables with proper land treatment. So that, work load income is spread over a longer period.
- Use of glyphosate herbicide for control of perennial weeds to cutdown the need for the tillage operation. More emphasis on multi-cut-foddler crops (by broadcast method) so that repeated sowings, interculture and plant protection are minimized.
- Inter cropping system even in areas where double cropping is feasible to cut down the need for land preparation for second crop.
- Production of hybrid seed, seedlings and raising of nursery to make the best use of traditional interest.
- Alternative methods of pest control like soil application of pesticide, dusting in place of spraying, use of trap crop, baiting method, biological control, use of virus (NPV) and timely sowing. So that excessive dependence on outside input and difficulty in spraying operations are avoided.
- use of light weight equipments like sprayer for convenience in application of pesticide or herbiside.

Soil harvesting, structures, (i.e) checle, dam and gully control structures, to restore the eroded land for cultivation of crop.

Labour saving alternatives for peak period

Transplanting - Direct sowing of seed - Rice, chillies, finger millet - throwing of seedling - finger millet- in plough farrow.

Mechanised transplanter

- Manual operated Rice
- Motor operated Rice

Hand Weeding

- Herbicide use most of the crops

  Rotary weeder most of the crops

Harvesting: Mechanical harvester

- Manual operated Rice, safflower, groundnut, potato, sorghum, peas/millet, wheat, rice and Soyabean.
- Tractor operated groundnut
- Self propelled wheat

6. Drying of produce by standing under scorching sun.

7. Winnowing in dust and sun for a long time.

8. Parboiling of rice by traditional arduous methods with hard physical labour.

9. Dehusking / shelling, pounding, grinding of cereals and pulses by hand.

The various tools and implements developed by Central Institute of Agricultural Engineering, Bhopal (Ojha and Sarena, 1988) are very useful to offer comforts to the rural women specially to those who are involved in performing agricultural operations. The available improved technology can definitely increase the working efficiency of women and remove the drudgery and fatigue in farm operations.

1. Improved weed tool:

It was developed for weeding operations in the row crops. The tool is operated in standing position and push-pull action of arms is required. The weeding operation can be performed 2-3 times faster than conventional tool with the improved hoe.

2. Improved sickles for harvesting

The new design has aserrated edge blade and cutting

of the crop is by frictional cutting, which increases the cutting efficiency of the sickle and require less muscle force. By using improved sickle for harvesting, the work output can be increased by about 15 per cent.

3. Maize cob sheller

A tubular maize sheller was developed which is very simple in design, low cost and gives about 4-5 times work output as compared to traditional method.

4. Groundnut decorticator

The decorticator consists of steel frame which is fitted with perforated screen. The groundnut pods are placed in the hopper and the handle is given the reciprocating motion. The machine has an output or decortication capacity of 40-50 kg/hr.

5. Transplanting of paddy

Five or six rows, IRRI type transplanter have been adopted with promising results. The machine can be operated by a woman efficiently. Growing a special type of nursery known as 'MAT' type nursery has to be introduced to raise seedling.

6. Seed Cum Fertiliser drills

This can perform the dropping of seed and fertilizer mechanically. The uniform dropping of the seed and fertilizer in the rows is also maintained and no additional labour is required except an operator.

Sanghi (1988) has pointed out the following technologies.

1. Cultivation of colygne and Cyprus species under rainfed conditions (in deep water rice and shallow water rice lands respectively) four preparation of mats, as is being done in parts of Bihar and West Bengal.

2. Cultivation of mulbery for (in community land or on private farms) for sericulture by landless households as is being promoted in parts of Karnataka.

3. Cultivation of pure crop under rainfed condition (in shallow soils and low rainfall areas) for rope making as is being done on a large scale in Bijapur district of Karnataka.

4. Cultivation of Jute in new areas due to the development of dry rating technology (Which includes Bibhoner equipment and spraying of fungus for extraction of fibre).

5. Cultivation of pabhar grass (or slopy lands of shivalik hills) for rope making.

6. Proper choice of perennial trees in agro forestry systems for general of employment (e.g) popular tree (in northern region) for making match sticks, palm tree (in paddy area) for preparing handicrafts, neem tree for harvesting and process ing of produce during the summer season.

7. Promoting tapioca crop in new areas as being done by the integrated tribal development agency in Andhra Pradesh. Sago preparation provides a good source of employment for farm women.

8. The cultivation of aromatic grasses for essential oil provides another possibility of income as well as employment for farm women.

It is now being widely recognised that agricultural research should pay more attention towards, meeting the farm women sheds. This requires that the / scientists should focus on the full aspects.

Understanding the types of jobs carried out by the different categories / classes of farm women.

Critical analysis of existing method ./ equipment used by farm women with particular references to efficiency in output drudgery.

Identification of 'lean' and peak periods of employment in different occupation.

Understanding the specific productin problems on women headed farms or where women are the principal farmers.

Assigning the relative proportion of different categories of farm women so that target could be assessed.

Methodology

III METHODOLOGY

The methodology for the study "influence of Technology Transfer on Farm Women", is discussed under the following headings:

A. Selection of the Area

B. Selection of the Sample

C. Selection of the method

D. Evolving the tool

E. Administration of the tool and

F. Analysing the data.

A. Selection of the Area

Periyanaickenpalayam block in Coimbatore district was the area selected for the study, owing to their accessibility and the co-operation extended by the authorities concerned.

B. Selection of the Sample

The success of any study depends on the careful selection of the sample. The choice of the sample must be decided according to various factors such as nature of the study, size of the universe, size of the population, degree of precision desired and availability of resources (Elhance, 1984).

The sample comprised 25 Assistant Agricultural Officers of the Training and Visit System to study the details regarding the form women.

The sample also consisted of 110 farm women selected randomly from 11 villages.

C. Selection of the Method

Interview method is an effective means of obtaining the desired data and yields a high percentage of returns. The information collected will be correct and it permits exchange of ideas.

Questionnaire method affords great facilities in collecting data from large, diverse and widely scattered groups of people. It is used in gathering objective, qualitative data as well as for securing information of a quantitative natur (Wilkinson and Bhandakar, 1982).

To elicit information about Technology Transfer on Farm Women and other details of the Training and Visit System from Assistant Agricultural Officers. questionnaire method was selected.

To elicit information about Technology Transfer on

Farm Women and other details from women farmers, interview schedule was selected.

"Case study is a method of exploring and analysing the life of a social unit, be it that a person, a family and institution, cultural group or even entire community", (Wilkinson and Bhandakar, 1982).

Hence case studies were prepared to highlight the influence to technology transfer on farm women.

D. Evolving the Tool

To obtain particulars from the Training and Visit System with regard to the functioning of the Training and Visit System and the Technology Transfer on Farm Women, a questionnaire (Appendix I) to be administered to Assistant Agricultural Officers was developed.

An interview schedule (Appendix II) to elicit information from the farm women on Influence of Technology Transfer on Farm Women was evolved.

E. Administering the questionnaire and conducting the interview

An introduction letter explaining the purpose of the investigation and the details required was sent through the

Assistant Director of Agriculture Training and Visit System with a request to furnish the particulars. After getting the permission from the authorities concerned, the investigator administered the questionnaire to 25 Assistant Agricultural Officers of the selected blocks. With the help of the finalised interview schedule, the investigator personally contacted and interviewed 110 women farmers from 11 villages in one block selected for the study, at the rate of 10 women farmers from each village to collect information with regard to the Influence of Technology Transfer on Farm Women. The data was collected by the investigator during January, 1990.

An action programme in collaboration with the Training and Visit System personnel was conducted on farm women in two villages. Five farm women from the village Samichettipalayam and five farm women from Naickenpalayam were motivated to join the training programme on modern farm technologies specially organised by the investigator in collaboration with the Training and Visit System personnel. Fourteen sessions of training on different dates were conducted in each of the two villages and the investigator persuaded the five farm women of the two villages to attend regularly. Lecture cum demonstration with the use of audio-visual aids were the methods followed and there was lively discussions after each session when doubts were clarified. The Training and Visit

system personnel visited participant women farmers in their farms periodically and monitored the programme when the new technologies given in the training programme were implemented by the farm women. The plan of activities are given in Appendix III and the results are presented in the form of case study.

F. Analysing the data

The data obtained from questionnaire and Interview schedule were exhaustive and although informative. It was extremely difficult to accomplish the simplification, quantification, statistical analysis and generalization. The data were collected, consolidated, tabulated and analysed using percentages and discussed in detail in Chapter IV.

Results and Discussion

IV RESULTS AND DISCUSSION

The Training and Visit System was launched in order to influence the Technology Transfer on farm for increasing production. The Training and Visit System also utilised women farmers in the villages for this purpose in addition to men farmers. The Training and Visit System utilised women farmers to influence, other farm women with regard to Technolgoy Transfer. The present study is to find out the influence of Technology Transfer on Farm Women in the villages. The results of the study are presented and discussed under the following headings

A. Information Collected from Assistant Agricultural Officers with regard to the Training and Visit System and on the Influence of Technology Transfer on Farm Women.

B. Views Expressed by Women Farmers with regard to the Influence of Technology Transfer on Farm Women.

C. Action Programme of Imparting New Technology to Farm Women in Two Villages.

A. Information Collected from Assistant Agricultural Officers with regard to Training and Visit System and on the Influence of Technology Transfer on Farm Women.

Information About the Assistant Agricultural Officers

Educational Qualification

A total of 25 Assistant Agricultural Officers of the Training and Visit System from six blocks constituted the sample for the study. Of them, 52 per cent were diploma holders in Agriculture, 28 per cent had studied upto S.S.L.C., twelve per cent P.U.C. and eight per cent had studied upto eighth standard.

The age range of Assistant Agricultural Officers varied from 25 to 50 years, 36 per cent belonged to the age range of 45-50 years, 20 per cent in the age range of 30-35, 16 per cent in the age range of 25-30 and 40-45 and remaining twelve per cent were in the age range of 35-40 years.

Experience

Forty per cent of the Assistant Agricultural Officers had stated that they had five to ten years of experience as Assistant Agricultural Officers, four per cent had 10-15 years, 16 per cent had 15-20 years and 40 per cent had 20 years of experience as Assistant Agricultural Officers.

Year of Starting

All the Assistant Agricultural Officers (25) had stated that the Training and Visit System programme was started in the year 1981.

Objectives of the Training and Visit System

The objectives of the Training and Visit System as given by the Assistant Agricultural Officers were: a majority of 61 per cent Assistant Agricultural Officers had stated "increasing yield", while 39 per cent "New Technology to reach all the farmers".

All the Assistant Agricultural Officers had stated that the Training and Visit System disseminated the new farm technologies from subject matter specialists through Assistant Agricultural Officers to women contact farmers and women contact farmers to other farmers.

Major Crops Cultivated

The major crops cultivated in the surveyed areas as given by the Assistant Agricultural Officers are given in Table I.

TABLE - I

MAJOR CROPS CULTIVATED

S.No.	Crops	Number (N:25)	Percentage*
1.	Cholam	15	60
2.	Cotton	15	60
3.	Sugar cane	14	56
4.	Maize	13	52
5.	Paddy	13	52
6.	Turmeric	11	44
7.	Groundnut	8	32
8.	Dhal varieties	7	28
9.	Vegetables	7	28

* Multiple responses.

The table reveals that a majority (60 per cent) had stated that cholam and cotton were the main crops cultivated in the area, 56 per cent sugar cane, 52 per cent maize and paddy, 44 per cent turmeric, 32 per cent groundnut and 28 per cent dhal varieties and vegetables.

Influence of the Training and Visit System on Improved Farm Practices to the Farmers

With regard to the influence of the Training and Visit System on improved farm practices to the farmers, the Assistant Agricultural Officers had Stated that the Training and Visit System had influenced farmers on the improved farm practices in the following ways: 76 per cent influence through frequent field visits, 72 per cent influence through demonstrations, 60 per cent influence through direct contact, 40 per cent influence through trials.

Area of Operation Under Training and Visit System

Each Assistant Agricultural Officer is given one to three villages for carrying out the Agricultural Extension programme under the Training and Visit System. The Assistant Agricultural Officer had carried out this agricultural extension programme in their area of jurdistiction through visits, giving training and providing on the spot guidance.

Number of Farmers in the Area of Work

The number of farmers in the area of work as given by the Assistant Agricultural Officers is given in Table - II.

TABLE - II

NUMBER OF FARMERS IN THE AREA OF WORK

S.No.	Number of Farmers	Number (N:25)	Percentage
1.	800 - 900	10	40
2.	901 - 1000	10	40
3.	1001 - 2000	5	20

The above table shows that 40 per cent Assistant Agricultural Officers each had said that 800-900 and 901-1000 farmers respectively and 20 had said 1001-2000 farmers under their area of work.

Details Regarding Training given to the Women Farmers by the Assistant Agricultural Officers

The Assistant Agricultural Officers had said that 60 per cent of women were aware of the training given with regard to the new technologies and improved practices, 40 per cent of women were not aware of the training given on improved technologies and practices.

Place and Duration of the Training

All the Assistant Agricultural Officers had stated that

the trainings were organised in the Tamil Nadu Agricultural College Campus and in the farmer's land in the village once in 15 days.

Content of Training

The content of training as given by the Assistant Agricultural Officers is given in Table - III.

TABLE - III

CONTENT OF TRAINING

S.No.	Content of Training	Number (N:25)	Percentage*
1.	Seed Treatment	15	60
2.	Integrated Pest Management	12	48
3.	Application of Fertilizers	10	40
4.	Crop Protection	8	32
5.	Soil Analysis	8	32

* Multiple Responses.

The data in the above table shows that a majority of 60 per cent had said that the content of training given to the women farmers included seed treatment, 48 per cent integrated pest management, 40 per cent application of fertilizers, 32 per

cent crop protection and soil analysis. The theoretical knowledge was reinforced through practical demonstration in all the training programmes.

The Assistant Agricultural Officers had said that among the contact farmers, 60 per cent were men contact farmers, and 40 per cent were women contact farmers.

All the Assistant Agricultural Officers had stated that they visit the villages once in fifteen days and they would clarify their doubts and monitor the implementation of the new practices to the farm women.

All the Assistant Agricultural Officers had stated that they would counsel the farm women to adopt the new Agricultural technologies and new practices and the farm women had accepted their counselling with regard to the improved technologies and improved practices.

All the Assistant Agricultural Officers had stated that they had encouraged the women farmers to participate actively in their discussions to clarify their doubts with regard to the improved technologies and practices.

Implementation of the New Practices

A majority of 90 per cent Assistant Agricultural Officers had said that all the trainees were satisfied with the new practices and 80 per cent of the trainees had implemented the practices, while 20 per cent of the trainees had not implemented the same in their farm operation. The reasons for not implementing the practices as given by the Assistant Agricultural Officers are women farmers do not have enough money, water, labour, time and other facilities.

All the Assistant Agricultural Officers had stated that a vast majority (80 per cent) of the women farmers had adopted the improved technologies and practices because of their influence.

Suggestions for Making the Influence More Effective as given by the Assistant Agricultural Officers

Suggestions for making the influence more effective as given by the Assistant Agricultural Officers are given in Table - IV.

TABLE - IV

SUGGESTIONS FOR MAKING THE INFLUENCE MORE EFFECTIVE

S.No.	Suggestion	Number (N:25)	Percentage*
1.	Frequent field visit	15	60
2.	To give subsidy	12	48
3.	Demonstration	10	40

* Multiple Responses.

The above table reveals that a majority of 60 per cent Assistant Agricultural Officers had said that the influence will be more effective through frequent visits, 48 per cent through providing subsidy and 40 per cent through demonstration.

Problems for not Implementing the New Farm Technologies

Assistant Agricultural Officers while monitoring the implementation of the new farm practices had evaluated the programme. Out of 25 Assistant Agricultural Officers, 15 had stated that the women farmers had not faced any problems or difficulties, ten had stated that the women farmers encountered some problems which are given in Table - V.

TABLE - V

PROBLEMS FACED BY WOMEN FARMERS

S.No.	Problems	Number (N:25)	Percentage*
1.	Financial constraints	8	80
2.	Lack of water facility	7	70
3.	Lack of time to meet the Assistant Agricultural Officer	5	56
4.	Lack of Labour	3	30
5.	Lack of Interest	3	30

* Multiple Responses.

The problems for not implementing the new Agricultural Technologies and practices by women farmers as given by the Assistant Agricultural Officers were 80 per cent financial constraints, 70 per cent lack of water facility, 56 per cent lack of time to meet the Assistant Agricultural Officers and 30 per cent each lack of labour and lack of interest respectively.

Steps to Overcome the Farmer's Difficulties

Steps to Overcome the difficulties of farmers as given by the Assistant Agriculture Officers are presented in Table VI.

TABLE - VI

STEPS TO OVERCOME THE FARMER'S DIFFICULTIES

S.No.	Method to Overcome the farmer's Difficulties	Number (N:25)	Percentage
1.	To introduce low cost technology	20	80
2.	To introduce seasonal crops	18	72
3.	To give subsidy	15	60
4.	Proper motivation	10	40

* Multiple Responses.

The suggestions as given by Assistant Agricultural Officers to overcome these problems are:

A majority of 80 per cent Assistant Agricultural Officers had said that they should introduce the low cost technology to the women farmers, 72 per cent had stated seasonal crops should be introduced, 60 per cent had said that subsidy is to be given and 40 per cent had said that the women farmers should be properly motivated.

B. Views Expressed by the Women Farmers with Regard to Influence of Technology Transfer on Farm Women

The investigator contacted 110 women farmers from 11 villages and got their views with regard to the Influence of Technology Transfer on Farm Women with the help of a specially evolved interview schedule.

The age distribution of women farmers is given in Table - VII

TABLE - VII

AGE DISTRIBUTION OF THE WOMEN FARMERS

S.No.	Age (in years)	Number (N:110)	Percentage
1.	20 - 30	19	17.2
2.	31 - 40	37	33.6
3.	41 - 50	29	26.3
4.	51 - 60	25	22.7

From the above Table, it is evident that out of 110 women farmers taken for the study, 33.6 per cent belonged to the age range of 31 - 40, 26.3 per cent in the age range 41 - 50, 22.7 per cent in the age range 51 - 60 and remaining 17.2 per cent in the age range of 20 - 30 years.

The educational level of the women farmers are given in Table - VIII.

TABLE - VIII

EDUCATIONAL LEVEL OF THE WOMEN FARMERS

S.No.	Educational Level	Number (N:110)	Percentage
1.	Illiterate	30	27.2
2.	Upto V Standard	39	35.4
3.	Upto XII Standard	33	30.0
4.	Degree	8	7.2

The above table shows that 35.4 per cent had studied upto 5th standard, 30 per cent had studied upto 12th standard, 27.2 per cent were illiterates and only 7.2 per cent were degree holders.

The caste distribution of the women farmers are given in Table - IX.

TABLE - IX

CASTE DISTRIBUTION OF THE WOMEN FARMERS

S.No.	Caste	Number (N:110)	Percentage
1.	Gounder	35	31.8
2.	Vokaliar	22	20.0
3.	Naidu	20	18.1
4.	Chettiar	10	09.0
5.	Scheduled Caste	10	09.0
6.	Muddaliar	8	07.2
7.	Christian	5	04.5

The above table indicates that 31.8 per cent of women farmers taken for the study belonged to Gounder community, 20 per cent Vokaliar, 18.1 per cent Naidu, nine per cent each Chettiar and Scheduled Caste, 7.2 per cent Mudaliar and there were only 4.5 per cent who belonged to Christian communities.

The occupation of the husbands of the 110 women farmers taken for the study are given in Table - X.

TABLE - X

OCCUPATION OF THEIR HUSBANDS

S.No.	Occupation	Number	Percentage
1.	Agriculture	58	52.7
2.	Mill Labourer	35	31.8
3.	Business	12	10.9
4.	Teachers and Professors	5	04.5

From the above table it is clear that a majority of 52.7 per cent women farmer's husband's occupation was agriculture, 31.8 per cent mill labourer, 10.9 per cent were businessmen, 4.5 per cent teachers and professors.

Out of 110 respondents surveyed, a majority of 85 per cent had one to two children in their families, eight per cent had no children, while four per cent had three to six children.

A majority of 90.6 per cent respondents surveyed belonged to nuclear families, while remaining 9.4 per cent were joint families.

Annual incomewise distribution of families of the sample is given in Table - XI.

TABLE - XI

ANNUAL INCOME OF THE FAMILIES

S.No.	Annual Income (in Rs.)	Number (N:110)	Percentage
1.	5,000 and below	45	40.9
2.	5,001 - 10,000	25	22.7
3.	10,001 - 20,000	15	13.6
4.	20,001 - 30,000	12	10.9
5.	30,001 - 40,000	5	04.5
6.	40,001 - 50,000	8	07.2

The above table reveals that the annual income of 40.9 per cent families was Rs. 5,000/- and below and 7.2 per cent had an income in the range Rs. 40,000/- 50,000. However it could be seen that a majority (77.2 per cent) of women farmers were in the annual income range of 20,000 and below that is, belonged to lower, middle class families.

The land holdings of the women farmers surveyed varied from one to 20 acres of land.

A majority of 80 per cent women farmers had said that they marketed the products in their local areas, 30 per cent had said that they marketed the products to the co-operative society.

The major crops cultivated by the women farmers are given in Table - XII.

TABLE - XII

MAJOR CROPS CULTIVATED

S.No.	Crops	Number (N:110)	Percentage*
1.	Cholam	47	42.7
2.	Cotton	40	36.3
3.	Banana	35	31.8
4.	Sugar cane	24	21.8
5.	Paddy	22	20.0
6.	Maize	21	19.0
7.	Turmeric	21	19.0
8.	Coconut	20	18.1
9.	Vegetables	15	13.6
10.	Tobacco	9	8.1
11.	Flowers	7	6.3
12.	Millets	5	4.5

* Multiple Responses.

The above table gives the fact that the farmers taken for the study, cultivate different crops like cholam 42.7 per cent, Banana 31.8 per cent, Paddy 20 per cent, Vegetables 13.6 per cent, flowers 6.3 per cent and 4.5 per cent cultivate millets.

Seventy eight per cent women farmers had said that they were aware of the researches carried out in the various areas of agriculture, 21.8 per cent women farmers were not aware of the researches.

The awareness of the researches carried out in the areas of agriculture are presented in Table - XIII.

TABLE - XIII

RESEARCHES CARRIED OUT IN THE AREAS OF AGRICULTURE

S.No.	Areas of Agriculture	Number (N:110)	Percentage*
1.	Ploughing	23	20.9
2.	Technology Application to soil	31	28.1
3.	Seed sowing	70	63.6
4.	Irrigation	49	44.5
5.	Insecticide spraying	73	66.3
6.	Harvesting	64	58.1
7.	Storing	69	62.7
8.	Marketing	36	32.7

* Multiple Responses.

From Table - XIII, it is evident that out of 110 respondents, a majority of 66.3 per cent were aware of the research carried out in technology namely insecticide spraying. 63.6 per cent were aware of seed sowing followed by 62.7, 58.1, 44.5, 37.5, 28.1 and 20.9 per cent women farmers in the areas such as storing, harvesting, irrigation, marketing, technology application to soil and ploughing respectively.

A Majority of 76.3 per cent women farmers knew that many new things have been discovered in farm operations, 23.6 per cent were not aware of the new farm operations.

The various sources of information with regard to the farm technologies introduced to women farmers are presented in Table-XIV and Figure - 3.

TABLE - XIV

SOURCES OF FARM TECHNOLOGY INFORMATION

S.No.	Source of Information	Number (N:110)	Percentage*
1.	Through Assistant Agricultural Officer	83	75.4
2.	Through contact farmer	48	43.6
3.	Through Radio	72	65.4
4.	Through Newspaper	64	58.1

* Multiple Responses.

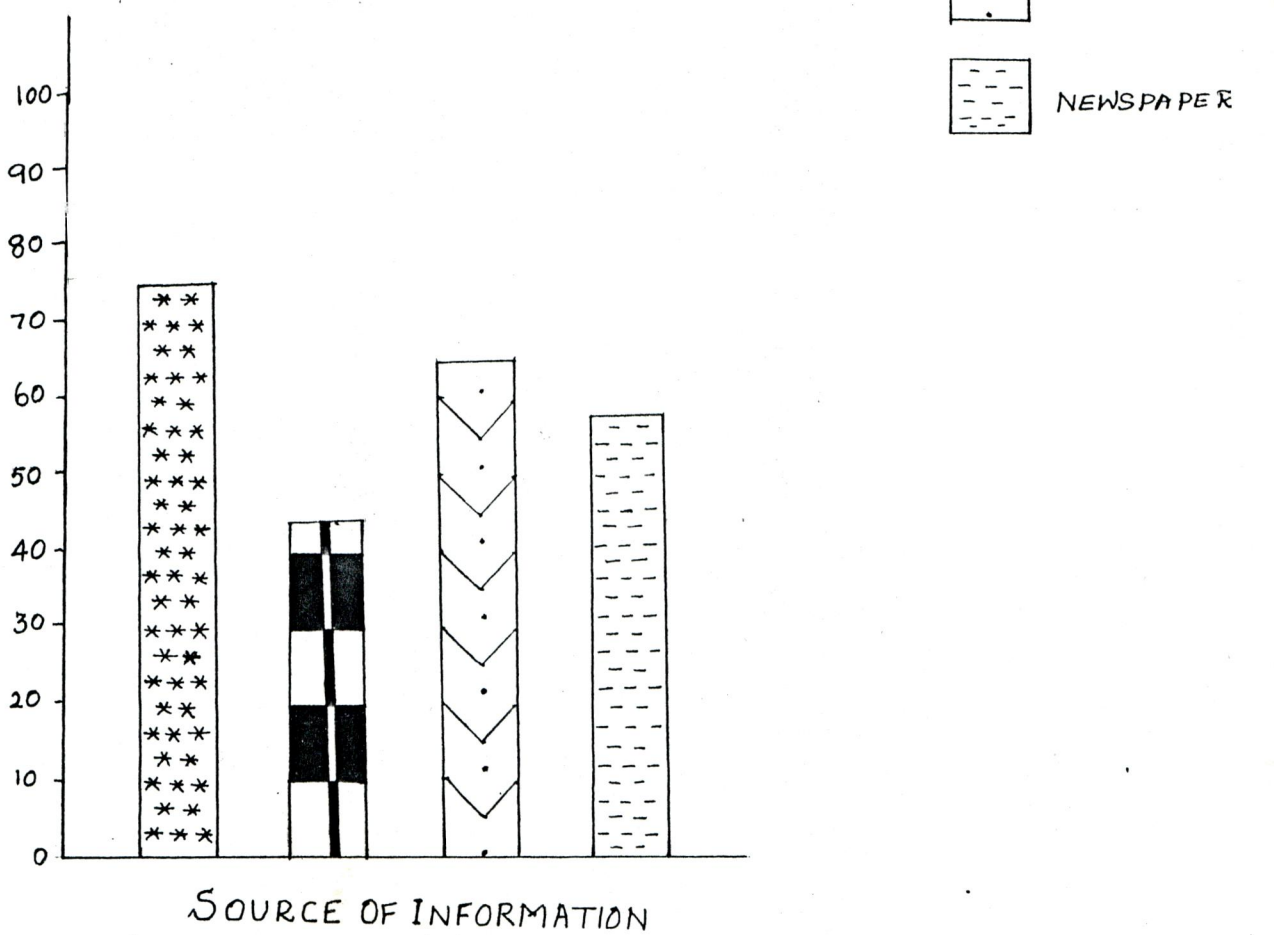

FIGURE-3

SOURCES OF FARM TECHNOLOGY INFORMATION

Above table reveals that 75.4 per cent of the women farmers were informed about the farm technology through Assistant Agricultural Officers, 65.4 per cent of them knew it through radio, 58.1 per cent of the women farmers knew it through Newspaper and 43.6 per cent knew it through contact farmers.

Seventy per cent of the women farmers had said that they had practised these technologies in their farms and remaining 30 per cent of the women farmers had stated that they had not practised these new technology in their farms.

Training in the New Technology

A majority of 84.5 per cent women farmers had stated that they had undergone training in the improved farm practices and technologies, 15.4 per cent had stated that they had not attended the training.

A majority of 84.5 per cent had stated that the trainings were organised by the Assistant Agricultural Officer in the Tamil Nadu Agricultural College Campus and in the lands of the farmers in the village once in 15 days and the remaining 15.4 per cent had no idea about the training.

The aspects of training as given by the women farmers is given in Table - XV and Figure - 4.

TABLE - XV

ASPECTS OF TRAINING

S.No.	Aspects of Training	Number (N:110)	Percentage*
1.	Seed treatment	65	59.0
2.	Weed management	63	57.2
3.	Water management	63	57.2
4.	Post-harvest technology	55	50.0
5.	Integrated pest management	52	47.2
6.	Soil analysis	32	29.0

* Multiple Responses.

From Table - XV it is evident that a majority of 59 per cent had said that the aspects of training given by the Assistant Agricultural Officers to the women farmers included seed treatment, 57.2 per cent weed management and water management, 50 per cent post-harvest technology, 47.2 per cent integrated pest management and 29 per cent soil analysis. The theoretical knowledge was reinforced through practical demonstrations in all the training programmes.

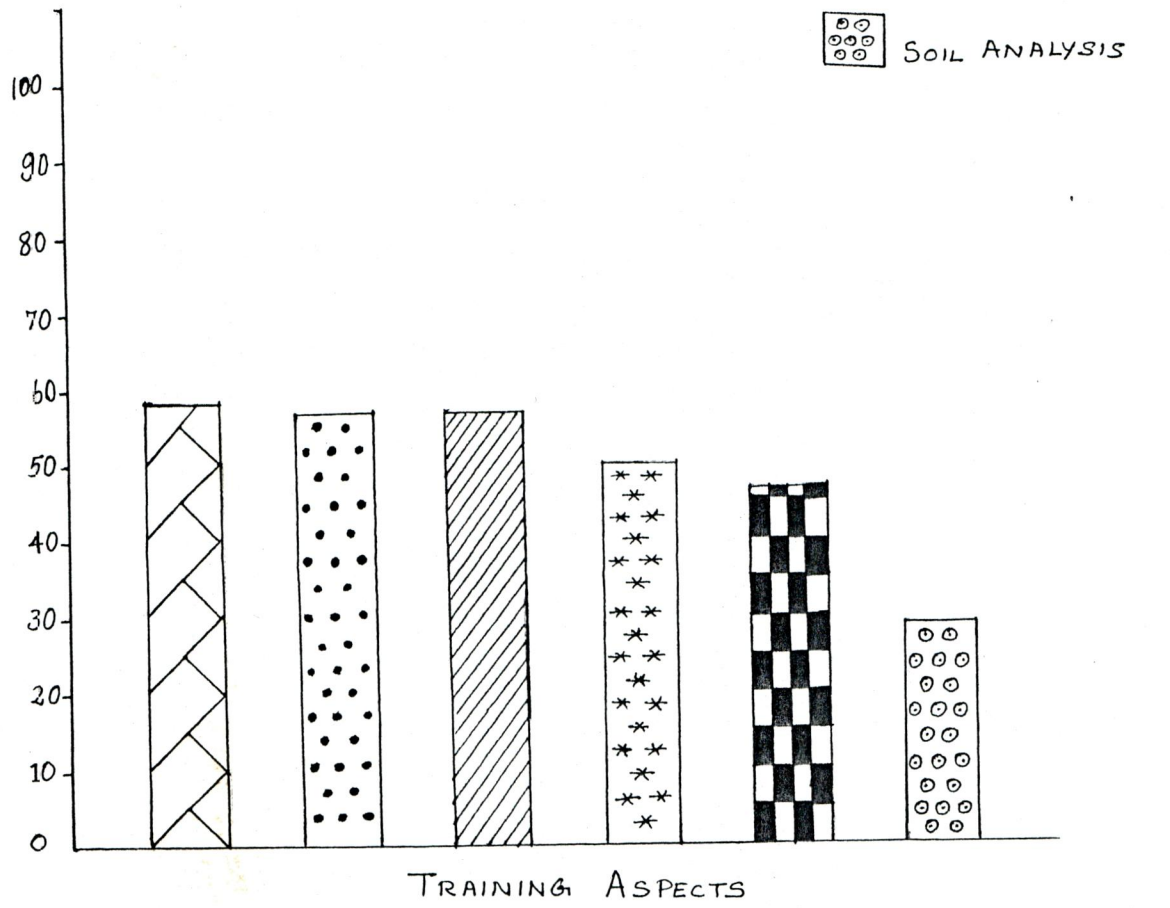

FIGURE-4

ASPECTS OF TRAINING

A majority of 80 per cent women farmers had stated that they had actively participated in the discussions during the training and clarified their doubts, 20 per cent had stated that they had just undergone the training and were passive listeners during the discussions.

All the women farmers had stated that the Assistant Agricultural Officers had conducted demonstrations in farmer's fields and in Tamil Nadu Agricultural College Campus fields.

A majority of 77.2 per cent women farmers had adopted the new farm practices in their farms and the remaining 22.7 per cent women farmers had not practised it.

The Persons who had Influenced them to Practice the New Technology

The persons who had influenced to practice the new technology are given in Table - XVI.

TABLE - XVI

PERSONS INFLUENCED TO PRACTICE NEW TECHNOLOGY

S.No.	Persons Influenced	Number (N:110)	Percentage*
1.	Assistant Agricultural Officer	78	70.9
2.	Relatives	50	45.4
3.	Friends	25	22.7

* Multiple Responses.

70.9 per cent of the women farmers were influenced by the Assistant Agricultural Officers, 45.4 per cent by relatives and 22.7 per cent were influenced by firends.

A majority of 81.8 per cent women farmers were convinced with this new practice, 18.1 per cent women farmers were not convinced with this new practice.

Reasons for being Convinced

The reasons as given by the women farmers for being convinced with the new Aricultural practice are given in Table - XVII.

TABLE - XVII

REASONS FOR BEING CONVINCED

S.No.	Reasons	Number (N:110)	Percentage*
1.	More Profit through more production	70	63.6
2.	Easy Method	65	59.0
3.	Quality Goods	60	54.5
4.	Low Cost Technology	55	50.0

* Multiple Responses.

It is interesting to note that 63.6 per cent women farmers were convinced with practising the new technology in their farms as it produced more, thus giving more profit, 59.0 per cent as it was an easy method, 54.5 per cent quality goods and 50 per cent as it involved low cost technology.

A majority of 90 per cent of the women farmers produced more by following and adopting these new agricultural technologies and practices.

A majority of 62 per cent women farmers had stated that new practices implemented by them were monitored by the

authorities, while 32 per cent had stated that the new practices implemented by them were not monitored by the authorities.

Seventy nine per cent women farmers intend to implement this new practice in all their agricultural operations, 20.9 per cent women farmers do not want to implement the new practice in their agricultural operations.

Influence of New Technology in Agricultural Operations

Eighty per cent of women farmers were of the opinin that the knowledge of these new technology had influenced their agricultural operations, remaining 20 per cent of the women farmers had opined that the new technology had not influenced their agricultural operations.

The influence of new technology in agricultural operations in their farms are presented in Table - XVIII and Figure - 5. Plate 1, 2 and 3 show the fields after the adoption of new technologies namely High yielding variety, Fertilizer application and Weedicide application respectively.

TABLE - XVIII

INFLUENCE OF NEW TECHNOLOGY IN AGRICULTURAL OPERATIONS

S.No.	Influence of New Technology	Number (N:110)	Percentage*
1.	New Variety	77	70.0
2.	Fertilizer Management	76	69.0
3.	Spacing	75	68.1
4.	Weedicide Application	72	65.4
5.	Water Management	71	64.5
6.	Plant Protection	63	57.2

* Multiple Responses.

The above table reveals that 70 per cent had stated that the new variety, 69 per cent fertilizer management, 68.1 per cent spacing, 65.4 per cent weedicide application, 64.5 per cent water management and 57.2 per cent plant protection. These are all the new technologies which had affected the agricultural operations.

Ninty per cent of the women farmers had stated that they had benefited by implementing the new practice.

Eighty per cent women farmers had stated that the authorities who had given the training to the women farmers, visit

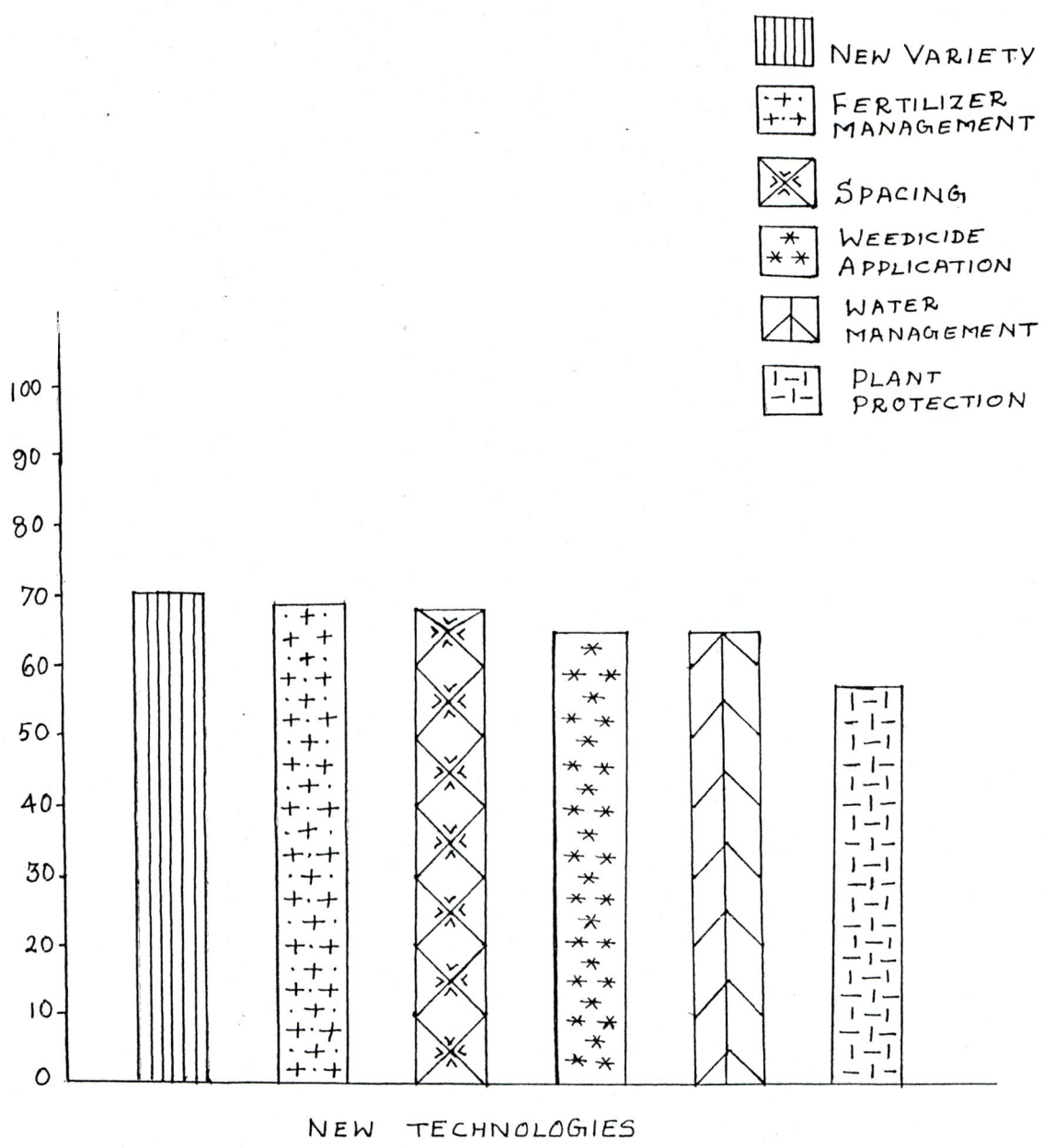

FIGURE-5

INFLUENCE OF NEW TECHNOLOGY IN AGRICULTURAL OPERATIONS

PLATE - 1

HIGH YIELDING VARIETY-BLACK GRAM

PLATE - 2

RECOMMENDED DOSE OF FERTILIZER APPLIED FIELD

their farms very often and 20 per cent women farmers had stated that the authorities had not visited them.

Reasons for not Implementing the New Practices in their Farm

The reasons given by women farmers for not implementing the new practices are given in Table - XIX and Figure - 6.

TABLE - XIX

REASONS FOR NOT IMPLEMENTING THE NEW PRACTICES

S.No.	Reasons	Number (N:110)	Percentage*
1.	Financial Constraints	70	63.6
2.	Lack of Water Facilities	50	45.4
3.	Not Getting Seed and Fertilizer on Time	30	27.2
4.	Not Attending Meeting	30	27.2
5.	Not Present During the Assistant Agricultural Officer's Visit	25	22.7
6.	Lack of Co-operation	20	18.0

* Multiple Responses.

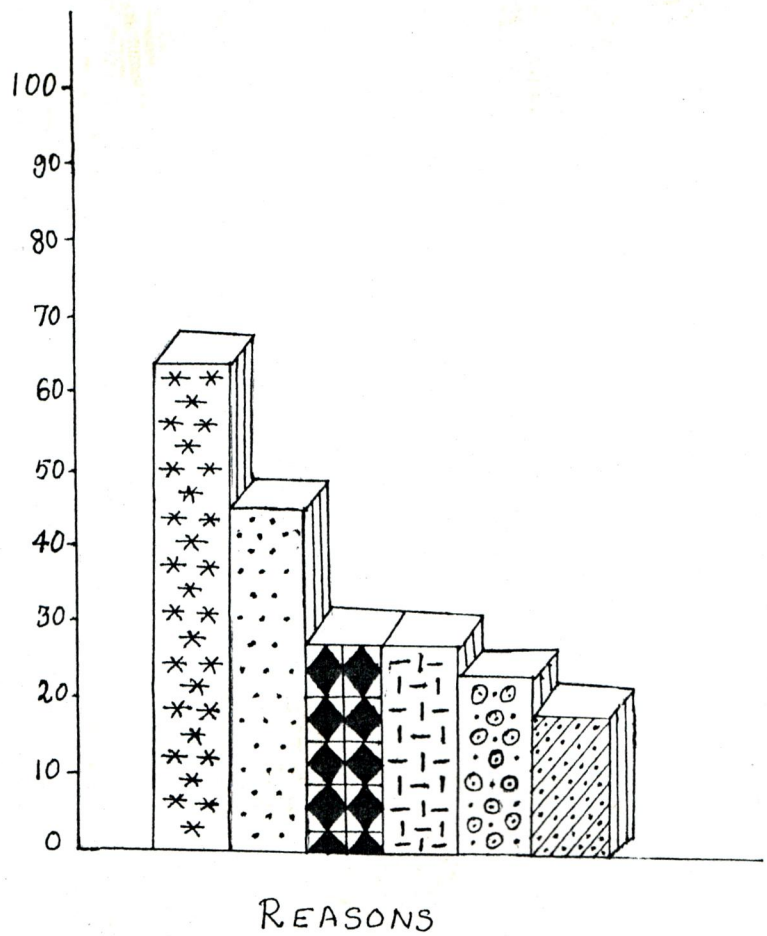

FIGURE-6

REASONS FOR NOT IMPLEMENTING THE NEW PRACTICES

Sixty three per cent had stated they faced financial constraints, 45.4 per cent lack of water facilities, 27.2 per cent not getting seed and fertilizer on time and not able to attend meetings, 22.7 per cent farm women were not present during the Assistant Agricultural Officer's visit and 18 per cent do not get adequate co-operation from the family member as the reasons for not practicing the new technologies in their farms.

Fifty per cent of the women farmers had said that the neighbouring farmers of the village had visited their farms and had discussed with them about the farming and new practices.

Sixty per cent of the women farmers had influenced other farmers to adopt the new practice, 70 per cent of the women farmers had said that they had implemented the new practices in their farms.

Sixty five per cent of the women farmers had said that the other farmers in the neighbourhood had also influenced them with regard to the new technologies in agricultural operations which the neighbouring farmers had practised in their farms.

C. Action Programme of Imparting New Technology to Farm Women in Two Villages

Two villages in Periyanaickenpalayam block, namely, Samichettipalayam and Naickenpalayam were selected for conducting the action programme, because of the following reasons:

i. A good rapport could be established easily, since these two villages were accessible to the panchayat union office.

ii. Good co-operation was extended by the farmers and local leaders.

Case Study I

The village, Samichettipalayam with an area of 457 hectares is situated at the distance of seven kilometres from Periyanaicken-palayam. In this village, the cultivated area is about 160 hectares while the dry land is about 297 hectares. About 200 houses are in this village. The total population of this village is about 5000. Cultivation of paddy, sugarcane, cholam, cotton, vegetables and pulses is widely prevailing in this village. Agriculture and poultry are playing the vital role in this village as the main occupation.

Among the women farmers, five were selected randomly for action programme. Agriculture is the traditional occupation for all these five families. Their cultivation land was from five to ten acres. They cultivated sugarcane, paddy, cholam, cotton,

vegetables as the main crops. In the beginning they were not aware of the new farm technologies. Hence, they were doing agricultural operations following the old traditional patterns. They were getting low production and hence were not able to get more income, from agriculture. Their economic status and standard of living were also very low.

They came to know about the Training and Visit System through Assistant Agricultural Officers and they were motivated to attend the training with much interest. They practised the new technologies that they had learnt, like introduction of High-yielding variety and seed treatment (Plate 4). Fertilizer application, Weedicide application and micronutrient application in their farms are the other desirable practices adopted by them. They were able to produce more. The benefits accrued by the five women farmers are:

i. They found agriculture more profitable
ii. Knowledge about new technology
iii. Awareness of seasonal crops
iv. Application of correct fertilizers to crop variety
v. More profit with low cost technology and
vi. Knowledge to prevent the plant diseases.

As their income and profit from agriculture had increased to an appreciable amount, they were motivating other farmers in their village, to attend the training to follow the new technologies available. Thus they acted as the Change Agents in the village.

PLATE - 4

SEED TREATMENT DEMONSTRATION

They were much interested in knowing about the new technologies in agriculture and adopting them immediately. Often they met, the Assistant Agricultural Officer and asked for the current technologies available. They hope that their status of living can further improve by the arrival of much more new technologies.

Case Study II

Naickenpalayam Village is situated in the Periyanaicken-palayam Panchayat Union and is four kilometers away from Periya-naickenpalayam with an areaa of 206 hectares. The total cultivated area and dry land are about 76 and 130 hectares respectively. The number of houses in the village is 243. The total population of the village is about 2,485. Among them, the farmers constitute 516. Agriculture is the main occupation in the village. The cultivation of this village are Turmeric, cotton, maize, Sugarcane and vegetables.

Among the farmers five leading women farmers were selected for the action programme. Agriculture was the traditional occupation of them. They had studied up to middle school. Their agricultural land ranged from five to fifteen acres. Mainly they cultivated sugar-cane, cotton, turmeric and vegetables following the old traditional practices.

Before attending the training, they were unaware of the

new agricultural technologies available namely, the high yielding variety, fertilizer application and intercropping pattern. They could not get profit from agriculture. After they came to know about the training facility available under Training and Visit System, they attended the training. They were given knowledge about the new technologies and their farm application. They were given training by personal contact and group discussion. All the technologies were demonstrated in the research field and their results were shown to the farmers. Thus they were convinced.

As "Seeing is Believing", after seeing the demonstration and results, the farmers practised the new technologies in their farms. High yielding variety, Intercropping pattern, seed treatment, micro-nutrient application, fertilizers application, insecticide application and pest control were the new technologies taught to the women farmers during training. Inter-cropping pattern and pesticide application were the commonly practised technologies by the farmers in their own field (Plate 5 and 6). As the technologies were easy to apply and of low cost, they were convinced that the new technologies will increase production.

The following benefits were attained by farmers by applying the new technologies.

i. Their economic status has increasedthereby their status of living improved.

PLATE - 5
INTER-CROP CULTIVATION

PLATE - 6
DEMONSTRATION OF PESTICIDE APPLICATION

ii. Due to their knowledge about new technologies, they were capable of adopting the same.

iii. High profit from low cost technology and

iv. Awareness about seasonal crops.

Since, they had been benefited in the above mentioned aspects, they motivated the other farmers in the village, to attend the training and to get more benefits and profit. Their motivation made many other farmers to attend the training and adopt the same. These five farmers evinced keen interest in adopting the new farm technologies and requesting the Assistant Agricultural Officer to inform them the current technologies available and asking them to visit their fields also.

Summary and Conclusion

V SUMMARY AND CONCLUSION

Agriculture promotes economic development of the country. The importance of agriculture in Indian economy is evident. Increase in agricultural production and productivity leads to increase in the income of the farmers. The share of agriculture in national income is often taken as the indicator of economic development. In India women of rural areas are exclusively involved in agriculture - the primary sector of economy. In our country about 35 million women are engaged in agriculture as cultivators and agricultural labourers. Women do the extremely tedious, time and labour intensive works like sowing, transplanting, weeding, harvesting, threshing, transport and post-harvest operations like shelling, cleaning, grading and processing.

Technology plays an important role in rural areas. A large number of agricultural technologies are available which can improve the effficiency and productivity of women and reduce their work load and drudgery. The adoption of new techniques and implements by the farmers has brought about green revolution in various parts of the country. The new extension system of "Training and Visit" provides a two-way traffic between scientists, extension workers and the farmers. It created a new awakening among Indian farmers and promoted transfer of technology.

This study on the "Influence of Technology Transfer on Farm Women", was undertaken in Periyanaickenpalayam block of the Coimbatore District. 25 Assistant Agricultural Officers of the Training and Visit System, 110 women farmers and ten progressive farmers constituted the sample for the study. The questionnaire method, Interview method and action research programme were the methods used by the investigator for the collection of data.

The findings of the study are summarised below:

1. "Increasing yield" and "Technology to reach all the farmers" are the objectives of the Training and Visit System.

2. The Training and Visit System disseminated the new farm technologies from subject matter specialists through Assistant Agricultural Officers to women contact farmers and from women contact farmers to other farmers.

3. The Training and Visit System had influenced farmers on the improved farm practices through field visits, demonstrations, direct contact and through trails which were conducted by the Assistant Agricultural Officers.

4. The trainings were organised in the Tamil Nadu Agricultural College Campus and in the farmer's land in the village by the Assistant Agricultural Officers once in 15 days.

5. Knowledge about new technologies of seed treatment, integrated pest management, application of fertilizers, crop protection and soil analysis were given to the women contact farmers by Assistant Agricultural Officers.

6. Assistant Agricultural Officers encouraged the women farmers to participate actively in their discussions and to clarify their doubts with regard to the improved technologies and practices.

7. As expressed by the Assistant Agricultural Officers, all the trainees were convinced with the programme and a majority of 80 per cent of trainees had implemented the same in their farms.

8. Lack of money, water, labour, time and other facilities were the reasons for not implementing the new practices by the farmers as given by Assistant Agricultural Officers.

9. A majority (60 per cent) of women farmers had adopted the improved technologies and practices because of the motivation and encouragement given by the Assistant Agricultural Officers.

10. Frequent field visits, providing subsidy and demonstrations were recommended by the Assistant Agricultural Officers to make influence more effective.

11. A majority of women farmers had no problems and difficulties in implementing the new farm practices.

12. The problems and difficulties faced by the minority of women farmers as given by Assistant Agricultural Officers were financial constraints, lack of water facility, lack of time to meet the Assistant Agricultural Officer, lack of labour and lack of interest.

13. Introducing low cost technology, seasonal crops, giving subsidy and proper motivation were the steps suggested by the Assistant Agricultural Officers to overcome the farmer's difficulties.

14. A vast majority (78 per cent) of women farmers were aware of the researches carried out in the various areas of agriculture.

15. Women farmers of 66.3 per cent, 63.6 per cent, 62.7 per cent and 58.1 per cent were aware of the researches carried out in the areas of agriculture namely insecticide spraying, seed sowing, storing and harvesting respectively.

16. A majority (76.3 per cent) of women farmers know that many new things have been discovered in farm operations.

17. Assistant Agricultural Officers, Radio, Newspaper and contact farmers were the sources of information as expressed by 75.4, 65.4, 58.1 and 43.6 per cent women farmers respectively.

18. A majority of 70 per cent women farmers had practised the technologies in their farms.

19. A majority of (84.5 per cent) women farmers had undergone training in the improved farm practices and technologies.

20. Seed treatment was the technology given for 59.0 per cent women farmers in training. Each 57.2 per cent women farmers were given training in weed management and water management respectively while 50 per cent, 47.2 per cent and 29 per cent were given training in post harvest technology, integrated pest management and soil analysis respectively.

21. A majority of 80 per cent women farmers had actively participated in the discussions during the training and clarified their doubts.

22. 70.9 per cent, 45.4 per cent and 22.7 per cent women farmers were influenced to practice new technology by Assistant Agricultural Officers, Relatives and friends respectively.

23. More profit through more production, easy method, quality goods and low cost technology were the reasons for being convinced as expressed by 63.6, 59.0, 54.5 and 50 per cent of women farmers respectively.

24. A vast majority (90 per cent) of the women farmers had produced more and benefitted by implementing the new practice.

25. New practices implemented by 62 per cent women farmers were monitored by the authorities.

26. 70 per cent, 69 per cent, 68.1 per cent, 65.4 per cent, 64.5 per cent and 57.2 per cent women farmers were influenced by the new technologies namely new variety, fertilizer management, spacing, weedicide application, water management and plant protection respectively.

27. Financial constraints and lack of water facilities were the reasons expressed by 63.6 and 45.4 per cent women farmers respectively, for not implementing the new practices.

Five women farmers from each of the two villages nemely Samichettipalayam and Nickenpalayam who were practising the old traditional method in thier agricultural operations and who had not undergone any training in new technologies were selected and were given training in their farmyards in collaboration with the Training and Visit System personnel. In all 14 sessions in each of the two villages were held imparting the new technologies in agriculture namely, introduction of high yielding variety, seed treatment, fertilizer applicaation, weedicide application, micro nutrient application, inter cropping pattern, insecticide application and pest control. With discussions and demonstrations the trainees were quite convinced about the utility of the new farm technology and they implemented these technologies in their farm practices and were benefited

by producing more. They also acted as "Change Agents" for other farmers in the neighbourhood.

The suggestions emerged from this study are as follows:

1. Financial assistance should be given with subsidy from the bank to the women farmers for practicing new agricultural technologies.

2. Timely supply of seeds should be provided to the farm women.

3. Assistant Agricultural Officers should often visit the farms.

4. Exhibitions, Compaigns, Discussions, Demonstrations and Field day may be organised to create awareness about the new technologies.

5. Prizes and awards may be given to the women farmers, those who adopt new technology and get more yield.

6. The department may request the AIR and Doordarsan to interview the progressive farmers who had followed the new technology and arrange to broadcast or telecast for wider dissemination and publicity of the new technologies.

Bibliography

BIBLIOGRAPHY

Achanta, I.D., 1982 — "Role of Women in Agricultural Development", Kurukshetra, Vol.31, No.2, Pp:15-17.

Acharya,S., 1973 — "Impact of Technological Change on Farm Employment and Income Distribution in Agriculture", Ind.Des.Abst., Vol.21, No.3.

Agnihotri, B.B., 1983 — "Income and Employment Pattern of Rural Women", A Case Study in the Una District of Himachala Pradesh, Unpub.M.Phil. Thesis, Economics Department, H.P.University, Shimla, P:18.

Ambastha, C.K., 1974 — "Communication Patterns in Farm Innovation Developing, Extension and System in Bihar-A System Approach", Unpub. Ph.D. Thesis, Division of Agri. Extension, I.A.R.I., New Delhi.

Anbalagan, 1977 — "A Study of Factors Influencing Adoption of Package of Practices for High yielding of Paddy", Unpub.M.Sc.(Agri) Thesis, Agri.College and Research Instt., TNAU, Coimbatore.

Awasthi, 1982 "Rural Women in India", A Socio-Economic Profile of Jammu Women, B.R.Publishing Corporation, Delhi. P:19.

Battacharjee, K.M., 1978 "Women in Development Efforts", Kurukshetra, March 1, Vol.XXII, No.24, Pp:20-22.

Chakravarthy,S., 1975 "Women Power in Agriculture", Kurukshetra, Vol.24, No.14, P:8.

Danda, A.K., 1972 "Communication Behaviour of Progressive Farmers in India", Society and Culture Vol.3, No.1, Pp:67-69.

Darbarilal, 1972 "Some Correlates of Communication Behaviour of the Punjab Farmers", Unpub. M.Sc.(Agri) Thesis, P.A.U., Ludhiana.

Das,P., Prasad.C., and Singh,R., 1988 "Training Methodology for Farm Women in Agriculture-An over view", Paper presented at International Conference on Appropriate Agricultural Technologies for Farm Women-Future Research Strategy and Linkage with Development Systems, Nov.30-Dec.6, ICAR, New Delhi.

Devadas, R.P., 1975 — "Role of Women in Modern Agriculture", Indian Farming, Vol.25, No.8, P:15.

Devi,L., 1987 — "Rural Women-Management in Farm and the Home", Northern Book Centre, New Delhi. Pp:81,82.

Devi,L.A., and Reddy,V.S., 1984 — "Role Expectation and Role Performance of Rural Extension Education", Vol.XX, No.3-4, Pp:27-34.

Dhillon,G., 1980 — "The Changing Role of Rural Women", Social Change, Vol.II, No.2, P:21.

Elhance,D.N., 1984 — "Fundamentals of Statistics", Kitab Mahal, Allahabad. Pp:19,26.

Gnanasekaran,K., 1978 — "Information seeking of Communication Behaviour of the Punjab Farmers", Unpub.M.Sc.(Ag.) Thesis, Agrl.College and Research Instt., TNAU, Coimbatore.

Gopal, 1975 — "Women in Ancient Indian Agriculture", Indian Farming, Vol.25, No.8, Pp:62-65.

Govind,S., 1984 — "Participation of Farm Women in Farm and Home Activities", Unpub.M.Sc.(Ag.) Thesis, TNAU, Coimbatore.

Gupta,V.S., 1983 — "Disseminating Agricultural Technology", VIDURA, Vol.4, No.20, Pp:199,200.

Jain,D., and Chand,M., 1982 — "Report on a Time Allocation Study- Its Technological Implications", Paper Presented at Technical Seminar on Women's Work and Employment, New Delhi.

Jaiswal,N.K., and Arya,H.P.S., 1981 — "Transfer of Farm Technology in India", Management of Transfer of Farm Technology, National Institute of Rural Development, Hyderabad. Pp:14-43.

Jyotsna,K., 1988 — "Female Rural Working Force Needs a Better Deal", Yojana, Vol.32, No.8, Pp:18-20.

Kalamegam,K.V., 1975 — "A Study on Communication Behaviour of Small Farmers in a Progressive Villages", Unpub.M.Sc.(Ag.) Thesis, Agrl.College and Research Instt., TNAU, Coimbatore.

Kaneda,H., 1981 — "Growth and Equity in India's Agriculture in Recent Years", An East Asian Perspective, Indian Journal of Agricultural Economics, P:39.

Kaur ,S., 1987 — "Women in Rural Development", Mittal Publications, Delhi, Pp:10-15.

Kulhari,V.S., 1981. — "A Study of Reorganised Agricultural Extension-Training and Visit System and its Impacts in Chambal Command Area Development Project in Rajasthan", Unpub.Ph.D. Thesis, Division of Agrl. Extension, I.A.R.I., New Delhi.

Manikar, 1980 — "Women working against Odd", Yojana, Vol.24, No.16, Pp:13,14.

Manivannan,N., 1980 — "A Study on the Knowledge and Extent of Sunflower Growers", Unpub.M.Sc.(Ag.) Thesis, TNAU, Coimbatore.

Mazundar,V., 1975 — "Women in Agriculture", Indian Farming, Vol.25, No.3, P:6.

Mies, 1984 "Indian Women in Subsistance and Agricultural Labour", World Employment Programme Research Working Paper, International Labour Office, Geneva. P:19.

Mulay,S., 1974 "Role of Farm Women in Green Revolution", Indian Journal of Adult Education, Vol.35, No.11, Pp:90-93.

Mulay,S., 1988 "Transfer of Farm Technology and its Impact of Farm Women", International Conference on Farm Women, Nov.30-Dec. 6, ICAR, New Delhi.

Nanjayan,K., 1973. "A Study on the Utilisation of Information Sources and Channels for the Adoption of Improved Practices for Sugarcane by Farmers in Karamadai.

Ojha,T.P., and Sarena,B.B., 1988 "Removal of Durdgery and Income Generation for Farm Wome through Appropriate Mechanisation", Paper Presented at the International Conference on Appropriate Agricultural Technologies for Farm Women, Pp:6,7.

Pandey,S.N., 1980 — "A Study of Communication Pattern under the Training and Visit System of Agricultural Extension in Chambal Command Area Development Project, Unpub.Ph.D. Thesis, Division of Agrl.Extension, IARI, New Delhi.

Pandy,U.K., 1986 — "Existing Status of Rural Women in changing Haryana Agriculture", Paper presented in the Seminar on Role of Development Programme on Socio-Economic Status of Women held in the Department of Agricultural Economics, HHU, Hisra, P:20.

Pannerselvan,T., 1978. — "A Study of Awareness Credibility and Utilisation of Information Sources of the Progressive and Non-Progressive Villages", Unpub.M.Sc.(Ag.) Thesis, TNAU, Coimbatore.

Perumal,G., 1970 — "A Study of Factors and Agencies responsible for the spread of Hybrid Maize in Coimbatore District", unpub.M.Sc. (Ag.) Thesis, Agrl.College Research Instt., Coimbatore.

Perumal, G., 1979 — "A Study on the Efficient Assessment of Credibility of Extension Methods and Media Relevant to Socio-Economic Groups and Patterns of Farming Inter-Disciplinary Approach, Beneficiary Report, R.I.Ag.Extn., Dept. of Agrl. Extension, Agrl.College Res.Instt., Madurai.

Perumal,G., 1987 — "Prospective Role of Women in Agricultural Development", Paper presented at National Workshop on Enterpreneurial Development of Rural Women, Dec.28-30, TNAU, Madurai.

Perumal,G., and Menon,R.K., 1981 — "A Pilot Study on the working of Training and Visit System in Madurai District", Research Project Report, Agrl.College and Res.Instt., TNAU, Madurai.

Prasad,C., Sinha,R.P., and Krishnan,K.S., 1988 — "Review of Research Studies on Women in Agriculture in India", ICAR, New Delhi. Pp:2,71, 88-90.

Rajendhran,V.A., 1980 — "Communication Problem and Prospects of Small Farmers", Unpub.M.Sc.(Ag.) Thesis, Agrl.College and Research Instt., Coimbatore.

Reddy,B.S.N., 1988 — "Developmental Programmes for Farm Women in Different States and their Linkage with Research System", Paper presented at the International Conference on Appropriate Agricultural Technologies for Farm Women, Pp:3, 47.

Reddy,H.N., 1976 — "An Analysis of Patterns and Procedures in Communication of Farm Information by Village Level Workers and Factors Associated with their Communication Behaviour", Unpub.Ph.D. Thesis, Division of Agrl.Extension, IARI, New Delhi.

Sadhu, and Singh, 1983 — "Fundamentals of Agricultural Economics", Himalaya Publishing House, Delhi. Pp:285-290.

Saikia,P.D., and Gogai,S.K., 1981 — "Women Labour in North East India", Yojana, Vol.25, No.12, Pp:11,12

Sangle,G.K., 1984 "Technological Growth and Rural Change", Metrolpolitan, New Delhi, Pp:1,13,15,16,20.

Sanghi,N.K., 1988 "Crop Technologies for Farm Women Identification, Application of Research Gaps", Paper presented at the Conference on Appropriate Agricultural Technologies for Farm Women, Pp:4-14.

Sankaran,S., 1984 "Place of Agriculture in the Economy of India", Indian Economy, Margham Publications, Madras. Pp:205-211.

Savarimuthu,G.V., 1981 "Training Needs of Women", Unpub.M.Sc. (Ag.) Thesis, TNAU, Coimbatore.

Sharma,A.N., 1984 "Economic Structure of Indian Agriculture", Himalaya Publishing House, Delhi. Pp:400-402.

Shobha,V., 1987 "Women and Nature of Indian Agriculture", Rural Women and Development, Mittal Publications, Delhi, Pp:11-20.

Singh,B.N., 1989 "Women Work Force Problems and Prospects", Yojana, Vol.XXIII, No.4, P:20.

Singh,D., 1981 — "Imbalances in Agricultural Growth", Indian Journal of Agricultural Economics, Vol.XXXVI, Jan-March, No.1, P:2.

Singh,K.N., and Bhattacharya,H.C., 1988 — "Crop Production Technologies for Farm Women", Paper presented at the International Conference of Appropriate Agricultural Technologies for Farm Women. Pp:5-12.

Singh,Y.P., 1981 — "Problems in Transer of Agricultural Technology", Management of Transfer of Farm Technology, National Institute of Rural Development, Hyderabad. P:50.

Sirohi,S., 1985 — "Involvement of Rural Women in Farming", Indian Journal of Extension Education, Vol.XXI, No.3-4, Pp:110,111.

Sisodia,G.S., 1971. — "Review and District Statistical Abstract of Parbhani District, Bombay, Directorate of Economics and Statistics, P:157.

Somasundaram,D., 1976 — "A Diagonastic Study of small Farmers with respct to New Technology and its Effective Communication for Adoption", Unpub.Ph.D. Thesis, Division of Agricultural Extension, I.A.R.I., New Delhi.

Somasundaram,D., 1986 — "Training Manual on Communication Technology for Agricultural Development in the Proceedings of In-Country Short Term Training on Communication Technology for Agricultural Development from August twenty September two, Mimographed, Directorate of Extension Education, TNAU, Coimbatore.

Sridhar,G., 1978 — "An analysis of Communication Pattern of Personnel in Extension and Client System-A Systems Approach", Unpub.M.Sc.(Ag.) Thesis, Agricultural College, UAS-, Heppal, Bangalore.

Stephens,a., 1988 — "Relevance of Farm Technology to Rural Women", Paper presented the International Conference on Appropriate Agricultural Technologies for Farm Women, P:1.

Swaminathan,M.S., 1985 — "Imparting a Rural Women User's Perspective to Agricultural Research and Development", A Draft Paper for Discussion (Project Design Workshop on Women in Rice Farming System), IRRI, Los Banos, Phillipines.

Thangamani,D., 1972. — "A Study on the Effectiveness of Different Sources of Information in the Adoption of Practices in Banana Cultivation by Farmers of Chinnamannoor Block", Unpub. M.Sc.(Ag.) Thesis, Agrl.College and Res.Instt., University of Madras, Coimbatore.

Velluchamy,M., 1979 — "Communication Behaviour of Small and Marginal Farmers Growing Paddy", Unpub.M.Sc.(Ag.) Thesis, Agrl.College Res.Instt., TNAU, Coimbatore.

Venkidusamy,G., 1977 — "A Study of the Motives of Small Farmers in Project (SFDA) and Non-Project Blocks for The Adoption of H.Y.V.of Cotton", Unpub. M.Sc.(Ag.) Thesis, TNAU, Coimbatore.

Vijayaragavan,K., 1976 — "A Study of Communication Behaviour of Garden Land and Dry Land Farmers", Unpub.M.Sc.(Ag.) Thesis, Agrl. College and Res.Instt., TNAU, Coimbatore.

Vijayaragavan,P., 1977 — "Study of The Factors Affecting the Knowledge and Adoption of High Yielding Varieties of Paddy and Marginal Farmers", Unpub. M.Sc.(Ag.) Thesis, Agrl.College and Res.Instt., TNAU, Coimbatore.

Viriyasini,S., 1986 — "Interfacing Technology and the Needs of Rural Women in Thailand", Farming Systems, Res. Instt., Department of Agriculture, Thailand.

Wilkinson,T.S., and Bhandarkar,P.L., 1982 "Methodology and Techniques of Social Research", Himalaya Publishing House, Bombay. Pp:188,189.

Appendix

APPENDIX-I

QUESTIONNAIRE TO COLLECT INFORMATION FROM ASSISTANT AGRICULTURAL OFFICERS ABOUT THE INFLUENCE OF TECHNOLOGY TRANSFER ON FARMWOMEN

Name :

Designation :

Educational Qualification :

Age :

Experience :

1. Place of the T and V System Office:
2. Year of Starting the T and V System:
3. Objectives of the T and V System :
4. Major crops cultivated in the locality:
5. How does the T and V System influence the improved farm practices to the farmers?
6. Area under the operation of your T and V System:
7. How many farmers are there in the area of work?
8. i) Have you given training to the farm women in the new technology?

   Yes No

   ii) If yes details

   Duration :

   Place :

   Subject :

iii) Among them how many are contact farmers?

Men :

Women :

9. i) Do you visit the farmers?

Yes No

ii) If yes, how often?

10. Do you clarify and monitor the implementation of the new practice?

11. Do you counsel them?

Yes No

12. Do they accept your counselling?

Yes No

13. Do you encourage the women farmers to participate actively in their discussion's to clarify their doubts?

Yes No

14. How many trainess were satisfied with the programme and implemented them in their farm operation?

15. Have they implemented the new practices, because of your influence?

Yes No

16. Can you suggest the ways through which influences could be made more effective?

17. If any among the trainees have not implemented, have you found out the reason?

Yes No

18. Have you taken steps to overcome their difficulties?

Yes No

APPENDIX-II

INTERVIEW SCHEDULE TO ELICIT INFORMATION FROM WOMEN FARMERS IN THE VILLAGE ON THE INFLUENCE OF TECHNOLOGY TRANSFER ON THE FARMS

A. General Information:

Name of the Interviewee :

Name of the Head of the Family :

Occupation and Address :

Type of the Family Joint Nuclear Caste:

Family Background :

S.No.	Name of the Family Members	Relationship to the head of the family	Age in years	Education: Literate	Education: Illiterate	Occupation	Total annual income (Rs.)

1. Since how long are you living in the village?
2. (i) How much of land you possess?
   (ii) What do you cultivate in your land?
3. Marketing pattern :
4. Annual Income :

5. (i) Are you aware of the researches carried out in the following areas in agriculture?

Yes No

(ii) If Yes, what do you know?

(i) Ploughing :

(ii) Technology appplication to Soil

(iii) Seed Sowing :

(iv) Irrigation :

(v) Insecticide spraying :

(vi) Harvesting :

(vii) Storing :

(viii) Marketing :

6. Do you know that many new things have been discovered in farm operations?

Yes No

7. How did you come to know about the new technologies?

Through Village Officer

Through Assistant Agricultural Officer

Through Contact Farmer

Through Training and Visit System

Through Radio

Through Newspaper

8. Do you practice any of these technologies in your farm?

Yes No

9. (i) Were you given training in these new technologies?

Yes No

10. If Yes,

(i) Who gave you the training?

(ii) What was the duration of training?

(iii) In which areas where you given training?

11. Did you participate actively in the discussions during the training and clarify your doubts?

Yes No

12. (i) Did they organise demonstration?

Yes No

(ii) If yes, where?

13. (i) Are you putting this new practice in your farm?

Yes No

(ii) What influenced you to practice the new practice?

14. (i) Are you satisfied with these new practices?

Yes No

(ii) If yes, how?

15. Do you produce more by following this new practice?

Yes No

16. Do the authorities who gave you the training visit to your farm very often?

Yes No

17. Do they monitor the new practices that you have implemented?

Yes No

18. Do you intend to implement this new practice in all your agricultural operations?

Yes No

19. (i) Do you think that the knowledge of these new technology has influenced your agricultural operations in your farm?

Yes No

(ii) If yes, state how?

(iii) If no, give reasons?

20. (i) Have you benefited by implementing the new technologies?

Yes No

(ii) If you have not implemented these in your farm give reasons for not implementing:

21. Do others in the village visit your farm to know about this new practice?

Yes No

22. Do you influence others to implement this new practice?

Yes NO

23. (i) How many in this village have implemented these new Practices?

(ii) Do they influence you?

Yes No

If yes, how?

APPENDIX - III

PROGRAMME FOR THE ACTION RESEARCH

S.No.	Period	Village*	Activities	Methods	Personnel involved
1.	13.11.89 14.11.89	V_1 V_2	Teaching the seed treatment technology - Bouestine - 2kg / kilo seed.	Demonstration	Investigator and Asst Agricultural Officer
2.	2.12.89 3.12.89	V_1 V_2	Transplanting, spacing basaldose, weedicide application	Demonstration and discussion	Investigator and Asst Agricultural Officer.
3.	11.12.89 12.12.89	V_1 V_2	Micro nutrient application, weedicide application	Discussion	Investigator and Asst Agricultural Officer.
4.	27.12.89 28.12.89	V_1 V_2	First Top dressing (1 acre) 50kg urea, 25kg potash, 10kg neem cake for slow release of nitrogen	Discussion	Investigator and Asst Agricultural Officer.
5.	8.1.90 9.1.90	V_1 V_2	Second top dressing-potash, urea plant protection (leaf roller) sevine 50%-1kg/acre (First dose)	Discussion	Investigator and Asst Agricultural Officer.

6.	22.1.90 23.1.90	V_1 V_2	Second plant protection - BHC dusting 10%	Discussion	Investigator and Asst Agricultural Officer.
7.	29.1.90 30.1.90	V_1 V_2	To introduce new black gram variety km. 2 - seed rate 8kg/acre, culture mixture (1 packet/8kg of seed)	Demonstration and discussion	Investigator and Asst Agricultural Officer
8.	5.2.90 6.2.90	V_1 V_2	2% DAP solution spray (Diammonium Phosphate) foliospray	Demonstration and discussion	Investigator and Asst Agricultural Officer
9.	12.2.90 13.2.90	V_1 V_2	To introduce new variety Co. 5, seed treatment Bouestine 2kg/kg of seed	Demonstration	Investigator and Asst Agricultural Officer.
10.	19.2.90 20.2.90	V_1 V_2	Inter-cropping pattern	Demonstration	Investigator and Asst Agricultural Officer
11.	26.2.90 27.2.90	V_1 V_2	To introduce new variety Co. 1, Asospirillum (1 packet/ 8 kg seed) and spacing	Demonstration and discussion	Investigator and Asst Agricultural Officer

12.	5.3.90 6.3.90	V_1 V_2	Top dressing - 25 kg Nitrogen	Discussion	Investigator and Asst Agricultural Officer.
13.	12.3.90 13.3.90	V_1 V_2	Second top dressing - 12.5 kg Nitrogen (110-120 duration)	Discussion	Investigator and Asst Agricultural Officer.
14.	19.3.90 20.3.90	V_1 V_2	To introduce fertilizer application recommended dose	Discussion	Investigator and Asst Agricultural Officer.

* V_1 - Samichettipalayam ; V_2 - Naickenpalayam.