

CHAPTER VII

SUMMARY AND CONCLUSION

7.1. Introduction

“Women feed the world”. The underlying fact is that women play a key role in producing world's food. World-wide, percentage of food production contribution by women is around 44 percent. With more men moving into off-farm employment, women are increasingly heading farm households and managing farms.

Indian farm women perform 70 - 80 percent of manual farm operations for crop production or livestock rearing. Being generally illiterate and ignorant, they have no access to new agricultural technologies. Gender discrimination, rooted in law and custom, is pervasive and impedes socio-economic development. Scientific achievements and modernization are yet to make an impact on her work back-breaking. Yet she is remarkable human machine for work, with high level of endurance, patience and efficiency.

In recognizing the importance of farmwomen in agriculture development, a massive project called Tamil Nadu Women in Agriculture (TANWA) was launched, The TANWA took a crucial role to impart training of farmwomen on farming and equip them to choose and adopt relevant modern technology. It is also expected that trained farm women will disseminate the acquired knowledge and skills to non-trained fellow farm women in their villages. In the trainee selection, preference is given to farm women, (a) with a minimum size of land holding required to implement the skills learnt, (b) Who do cultivation either on own land or through share cropping as their major economic activity and (c) Who have the motivation and affordability to

adopt the techniques learnt. The project lays continued stress on the target group because

- Small and marginal farms dominate the land holding pattern in the state.
- Women contribute significantly in productive activities in these small and marginal holdings.
- The normal training or extension support activities do not cover such small and marginal farmwomen to the desired level.

TANWA Programme was implemented by the State Department of Agriculture with financial assistance from Danish International Development Assistance (DANIDA) in all the districts (except Chennai) of the state.

The present study is the modest attempt to investigate several important and inter-related aspects of the small and marginal farm women development, with the following objectives.

Objectives of the study

1. To analyze the progress of TANWA programme in Tamil Nadu.
2. To assess the Awareness, Knowledge and Adoption of critical technologies among the participants and non-participants of TANWA.
3. To identify the association between the socio-economic characteristics and extent of Awareness, Knowledge and Adoption.
4. To assess the perceived socio-economic impact of TANWA programme on farm women.
5. To identify the constraints faced by trainees and suggest suitable measures to overcome them.

Methodology

The study is a descriptive one based on survey method encompassing both secondary and primary data. The secondary data covers list of TANWA trained women, TANWA farm women groups, skill imparted under each system and district wise progress, The primary data were collected from the trainees as well as non-trainees. The study has adopted multi-stage sampling method. The present exercise is confined to three districts of Tamil Nadu namely Coimbatore, Erode and Nilgiris representing, Dry, Wet and Hill farming system respectively. The lists of TANWA groups under each farming system who underwent training during the period 1998-2000 were obtained from the Agriculture Department. Among them, 20 per cent of the universe from each district was taken as sample which came to 60 respondents per district. For non-participant category, six villages from each district where TANWA unfunctioned were selected and equal numbers of respondents (60 per district) were selected randomly for comparative purposes. Thus, a total sample of 180, were selected under non-participant respondents. Finally, a total sample of 360 were arrived including 180 participants and an equal number of non-participant respondents.

The survey was undertaken during the year 2002 -2003. The collected data were scrutinized, edited, analyzed, processed, tabulated, interpreted using the statistical tools like percentages, Arithmetic Mean, Cumulative Frequency, t test, ANOVA, Simple Correlation, Multiple Regression and arrived the findings with conclusions. The following are the findings and the conclusions of the study.

7.2. Findings of the study

7.2.1. Progress of TANWA programme in Tamil Nadu:

- TANWA project phase I was in operation during the period 1986-1993. Over the seven year period, it has increased the awareness levels among 14,782 farm women, with small and marginal landholdings on use of latest agricultural techniques.
- Exposure was given to more than 3000 non-trained farm women. Due care was given to follow-up visits during the first phase as reflected in 990 follow up visits. The total project cost of phase I was Rs. 4 crores.
- The phase II of TANWA extended from 1993 to 2003. Fifty five training teams functioned for conducting training programmes in different areas. The project cost of phase II was Rs. 34 crores. Women farm graduates were appointed as Agricultural Officers at headquarters, district and division levels totaling to 215 positions for conducting training programmes. About 83,145 farm women were trained in phase II and 3326 skill based village level training programme were conducted. Farm women with leadership and communication skills were identified during the training programmes and designated as 'link leaders'.
- Around 49,490 farm women were trained in 2472 group based special training. In the phase II of TANWA 884 farm women conferences were organized to facilitate sharing of know-how. About 1723 farm women groups were formed during the period. To prove the worth of innovative agricultural technologies 2321 model farms were created at various locations across the

state. These model farms served as learning centers for TANWA groups who approach for an exposure visit to experience the implications of the techniques taught to them in the training. Even non-participants of TANWA were also inspired by these model farms. Orientation under TANWA was given to 3384 AAO's to enable them in the art of disseminating modern farm practices to farm women. In tune with the objectives of TANWA due attention was given to spread effect, wherein 555325 co-farm women were benefited through dissemination of knowledge by TANWA participants.

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- Tirunelveli district with 206 TANWA groups tops the list in the formation of TANWA farm women groups followed by Kanyakumari (107) and Thanjavur (102) districts.
- All the TANWA trained farm women are listed as 'Contact farmers' with whom AAO's keep in constant touch by visiting them regularly, for giving them technical information and 'advice'.

7.2.2. Profile of Farm Women

- Majority of the respondents were young and middle aged, irrespective of the fanning systems i.e., Dry, Wet, Hill tracts under both participant and non participant categories.

- Majority of non-participants were illiterate and a significant proportion of the participants were educated in primary to secondary levels.
- A telling majority of (above 90%) the families under the participant and about three-fourth (73.3% - 90%) of families under the non-participant category have been running nuclear families.
- Majority of the respondents under both participant (95% and above) and non-participant (88.3% and above) categories were possessing a family size of less than 5 members.
- Majority of the respondents (above 70%) in all the three farming systems had high level of farming experience in both participant and non-participant categories.
- For more than three-fourth of the participant and non-participant respondents, farming alone was the primary occupation.
- Majority of the participant (60% to 66.60%) as well as non participant (65% to 70%) respondents had been involved in farming, attuning to medium level.
- Majority of the non-participants of TANWA possessed medium to high level of social participation, excepting dry farming system, while majority of the participants had possessed low level of social participation,
- Majority of the respondents under participant category possessed small sized dry farms (66.70%) and marginal size wet (73.30%) as well as hill (76.70%) farms. Majority of the non-participants possessed marginal sized lands in all the three farming systems.

- Majority of the participant respondents in both wet and hill farming system, earned more income annually, compared to participants of dry land farming system. Similar observation was found out in non-participant respondent category too.
- Majority of the participant as well as non-participant respondents of all the three farming systems have been residing away from their farms, excepting the participants (55%) in Wet farming system who lived in on-farm residence.
- It is found that 93.40 per cent, 80 percent and 85 percent of participants in dry, wet and hill farming systems respectively maintained a medium level of Extension Agency Contact.
- Majority of the participant and non- participant respondents under all the three farming system possessed almost moderate (medium) level of exposure on Mass Media sources, Scientific Orientation, Economic Motivation, Decision Making Behaviour and Innovativeness.

7.2.3. Awareness, Knowledge and Adoption Behaviour

Eleven critical agricultural technologies were identified for measuring the Awareness, Knowledge and Adoption level of TANWA participants as well as non-participants. The critical technologies are Soil Sampling, Newly introduced Variety of the Crop, Use of Certified Seeds, Recommended Plant Population, Seed Treatment, Use of Bio-Fertilizers, Micro Nutrient Application, Conservation of Natural enemies of pests, Weedicide Application, Economic Threshold Level (ETL) based Pesticide Application and Organic Cultivation.

Awareness:

For the identified eleven critical agricultural technologies nearly two-thirds of the participants (64.40%) and more than half of the non-participants (53.9%) possessed a medium level of Awareness. Awareness level was high in Soil Sampling (100%), Recommended Plant Population (79.44%), Use of Certified Seeds (77.78%) and Organic Cultivation (73.33%) among participants. In the case of non-participants awareness level was high in Recommended Plant Population (66.11%), Organic Cultivation (47.78%) and Seed Treatment (42.78%). It reflects the fact that the TANWA programmes had been successful in increasing the awareness level of participant respondents on critical agricultural technologies.

Knowledge:

Looking into the Knowledge level of the identified critical technologies, 71.7 per cent participant respondents fell under medium category as against 42.2 per cent of the non-participant respondents. A majority (48.3%) of the non-participant respondents had low level of Knowledge, while the participant category exhibited higher Knowledge in Soil Sampling (90.0%), Recommended Plant Population (72.78%) and Organic Cultivation (70.56%). The non-participant category respondents also exhibited higher level of Knowledge in Recommended Plant Population (61.67%) and Organic Cultivation (42.78%). It is evident that the TANWA training programme has successfully lead the participants from awareness stage to knowledge stage and the absence of such a training programme had led to a backlog in the knowledge level of non-participants.

Adoption:

In the Extent of Adoption of identified critical technologies, 61.10 per cent of the participant respondents fall under Medium category as against 48.30 per cent of non-participants. About 65 per cent of the participant respondents adopted Soil Sampling techniques as against 13.38 per cent of non-participants. More than two-third (62.78%) of the participant respondents and more than half (54.44%) of the non-participant respondents adopted Recommended Plant Population as it is essential to get more yield. A higher rate of adoption by TANWA participants and lower level of adoption among non-participants shows that the TANWA training had a positive impact on the trainees in adoption of critical technologies.

7.2.4. Mean awareness, knowledge and adoption level

An analysis of the mean score obtained by both participant and non-participant respondents showed that the overall mean score of participants in awareness, knowledge and adoption was 70.60, 61 and 46.60 per cent as against the score of non-participants which was 38.20, 29.70 and 21.90 per cent respectively. In the overall scenario the non-participants were struggling to reach only about half of the mean scores of participants in awareness, knowledge and adoption. Deprived of the benefits of training programmes, knowledge sharing and exposure visits, the non-participants lagged behind securing a lesser mean score.

The result of the t-test reveals that there exists significant difference between participants and non-participants with regard to awareness, knowledge and adoption under three types of farming. This is attributed to the effective participation of women in TANWA activities like skill based training, special training programmes,

demonstrations, field visits, regular attendance in group meetings and follow-up activities.

The result of ANOVA reveals that among the participants there is no significant difference under three farming system with regard to awareness, knowledge and adoption. Among the non-participants there is significant difference between the three types of farming system in respect of knowledge level and there is no significant difference in awareness and adoption level.

The difference in the knowledge level among non-participants of the three farming system may be attributed to better irrigation facilities and the possibility of higher income in wet farming system, which always kept them in an advantageous position against their dry and hill counterparts who had limited income due to agro-climatic factors and inaccessibility to information sources like mass media and extension agency. Hence this difference is noted in knowledge level.

7.2.5. Relationship between the selected socio-personat, Economic and Psychological characteristics with Awareness, Knowledge and Adoption - A Summary

Seventeen independent variables namely, Age, Educational status, Family Type, Family Size, Farming Experience, Occupational Status, Extent of Involvement in Farming, Social Participation, Farm Size, Annual Income, Location of Residence, Extension Agency Contact, Mass Media Exposure, Scientific Orientation, Economic Motivation, Decision Making Behaviour, Innovativeness and three dependent variables namely, Awareness, Knowledge and Adoption were studied. Correlation and Multiple Regressions were performed to study the relationship and contribution of independent variables.

The variables that exhibited significant relationship are discussed in the following passages.

Age (Xi): It is evident that age had a negative relationship with the awareness Level of the non-participants in hill farming system and Knowledge level of participants in dry farming system. It means that as the age increases awareness and Knowledge level of farm women decreases in the above farming systems. The probable reason for this trend might be that most of the old aged farm women were less educated and they were not able to learn and grasp more knowledge, got more awareness unlike young and middle aged farm women who were dynamic and energetic. It could be put in a proper rationale that aged women would normally lack enthusiasm for acquisition of new skills.

Educational **Status (X₂)**: It is interesting to note that the education of non-participants of Dry and Wet farming system had shown positive and significant relationship with Awareness, Knowledge and Adoption behaviour. Education held the key to unlock all the mental barriers. Education not only adds knowledge but also widens the horizons of the individual. Higher the education, wider will be the interaction with different sources and increases their ability to grasp facts, analyze and interpret them in a better way. Educated farm women would have more information and knowledge seeking habits and have better access to all mass media. Thus education made the literate farm women to be analytical and self confident which led to increased knowledge. Hence this relationship was noted.

Farming Experience (X_5): As farm women tend to gain more experience in farming, the urge to seek new information and technical guidance got decreased. Farm women with many years of experience in farming would have certain preconceived notions and mastered the traditional practices of cultivation. Farming experience goes hand in hand with age, hence young and less experienced farm women were found to be innovative and enthusiastic to try out new practices. On the contrary the experienced and elderly farm women would not easily come out of their routine way and conventional methods of farming which was more pronounced under dry farming system. Hence a negative and significant relationship with adoption level of non-participants is exhibited in the dry farming system.

Occupational Status (X_6): Women with agriculture as primary or sole occupation will generally have more involvement in farming. She exert higher motivation and inclination to gain more information on various technologies as against a woman farmer who is involved in other occupations along with agriculture. In line with this a positive and significant relationship is exhibited between occupational status and awareness and knowledge among participants of dry farming system.

Extent of Involvement in Farming (X_7): A farm women with more involvement in fanning will have desire to acquire new information and knowledge in agriculture technologies to increase her income and reduce drudgery. This may be the reason why it showed positive and significant relationship with the awareness and knowledge level of participants especially in the Dry farming system.

Social Participation (X_8): Social participation had positive and significant relationship with awareness level of non-participants in wet farming system. No doubt that increased social participation will create a lot of opportunities to get more information. Farm women who had been office bearers and members of various organizations could have had more opportunities to share the experience of other progressive farmers as well as change agents on the merits of innovations. Hence such farm women could have more knowledge and adoption level.

Annual Income (X_{10}): Non-availability of finance will limit the farm women from adopting various agricultural technologies, as in recent days, the inputs for agriculture has become costlier. Under such conditions, a farmer with sufficient annual income alone can afford to adopt all the recommended practices. Hence this would have made the farm women in accruing more knowledge. In general the farmers with more annual income have access to media sources like radio, television, newspapers etc. This might be the probable reason for the reported significant and positive relationship between annual Income and awareness, knowledge and adoption level of farm women in different farming systems. In contrary to the above, negative significant relationship was found in the adoption level of the TANWA participants of Hill farming system. This may be due to the reason that majority of the TANWA participant farm women in the above system gained adequate income from existing farming practices. Their risk-averse attitude might have prevented them from adopting innovative technologies.

Extension Agency contact (X_{12}): Contact with extension agency will generally enable the farmers in the Dry, Wet and Hill farming system to gain more information which leads to more awareness. Extension Agency Contact exhibits a positive and significant relationship with awareness, knowledge and adoption of both participant and non-participants in all the three farming systems. Contact with extension agency helps in gaining information about various profitable agricultural practices. This had shown a positive and significant relationship with awareness, knowledge and adoption level of participants and non-participants of the three farming systems. Hence for carrying out agriculture successfully, regular contact with extension agency becomes a must.

Mass Media Exposure (X_u): Mass media exposure indicated that positive and significant relationship existed with awareness, knowledge and adoption. This implied that message exposure had a direct bearing on the awareness, knowledge and adoption of critical technologies. Mass media also played supplementary and complementary role for the change agency efforts. Mass media were capable of enhancing the farm women's awareness by way of frequent reinforcement of technologies in the three farming systems.

Scientific Orientation (X_{14}): A farm woman with high scientific orientation can be able to understand better, the rationality involved in introducing the modern technologies in her farm than the individual with the fatalistic attitude. Therefore they are likely to evince keen interest to gain exposure to different information sources and extension agencies which might have resulted in acquiring more knowledge gain. A positive

and significant relationship exists between scientific orientation and awareness, knowledge and adoption among both the participants and non-participants of wet farming system.

Decision Making Behaviour (X_{16}): In every day life farm women used to take decisions about farming which directly influences the success / failure of farming. Evidently better decision making by farm women would have helped them to acquire more knowledge. This might have been the reason for positive and significant association of decision making patterns.

Innovativeness (X_{17}): Old and new agricultural practices always clash with each other demanding farm women to develop the requisite skills and knowledge besides constant refinement in them. Innovativeness is an individual's interest and desire to seek change in farming techniques and introduces each change into her own operation as and when found practicable and feasible. To adopt a practice ahead of others, one would need to be aware of such practice and know how to adopt it at field level. This motivates the individual to make enquiries and equip themselves with the knowledge of innovation. This could have been the cause why innovativeness was positively and significantly related to awareness, knowledge and adoption level of participants and non-participants of TANWA in different farming systems.

7.2.6. Impact of TANWA on Trained Farm Women

7.2.6.1. Involvement of participants in Decision Making

A comparative picture of pre and post training period also brings out the fact that the participation of women in joint decision making has significantly improved. It is more glaring in the case of selection of crop and variety, weed management, pest management and post harvest operations in Dry farming system. Though women performance under dry farming has improved in marketing related decision, still their husbands play a dominant role which is reflected in the highest percentage (46.67%) of respondents falling under no participation category. The same trend is noticed in the case of Wet and Hill farming system also with slight variation.

In post training period independent decisions are more pronounced in the savings and investment operations under dry farming, post harvest operations under wet farming, selection of crop and variety under hill farming systems.

7.2.6.2. Socio economic impact of TANWA on farm women

More than half (56.11 %) of the respondents belonging to all the three farming systems were of the opinion, that they obtained highest yield. Majority (60%) of the hilly tract farmers, in addition to their yield increase, could improve their lands, in terms of Soil conservation measures, Soil fertility status etc. Only a lesser percentage (16,11%) said their drudgery level was reduced.

It was observed that the farm women developed and maintained outside contact, obtain adequate recognition from the society as well as acquired more knowledge about the developmental activities (71%). About 50- 60 % of them had the benefit of consulting the fellow farm women. The TANWA training programme,

by inculcating the values self confidence, leadership qualities, discipline, punctuality and collective strength paved the way for social empowerment of participants as a natural corollary of technological empowerment.

7.3. Sharing of Knowledge and Skill by the trained farm women with untrained farm women

It is found that cent percent of the participants shared the knowledge and skill acquired during training with the non-participant farm women. Nearly one-fifth (18.89%) of the participants had disseminated the technologies to 10 and above untrained farm women, one-third (30.56%) had passed the knowledge to 6-9 untrained farm women and 50.0 percent of the participants shared the information to less than 5 untrained farm women.

The spread effect is found to be more (78.33%) under the hill farming system, the reason being the proximity of residences and profitable nature of vegetables / fruit cultivation. Overwhelming majority of the participants had a desire to share the information with their family members (100%), friends (74.44%), neighbours (72.78%) and relatives (65.56%).

7.4. Problems encountered by the participants

Major problems encountered by the participants are as follows.

- Constraints associated with accessibility and availability of loan from formal financial institutions.
- Lack of appropriate technology.
- Lack of recognition of farmer's invention / indigenous technical knowledge

- Less follow-up programme.
- Poor co-ordination among different development departments,
- Coincidence of training programme with farm operation,
- Lack of guidance for marketing their products.

7.6. Suggestions

With the completion of the TANWA project in 2003 the sustainability of the project poses a challenge for the policy makers. Since the project has achieved a reasonable success under the group strategy of organizing women, integration of TANWA groups with the subsequent Rural Development programmes has to be given a serious thought.

With Self help Groups (SHGs) emerging as 'change agents' in rural areas, it is time that TANWA groups re-incarnate as agri-based SHGs. Though the SHGs have been highly successful in thrift and credit operations the future of these groups without micro enterprise promotion is bleak. Groups multiply in numbers without a concrete action plan for future. In this context, TANWA groups which have already been technologically empowered with proper training could be brought under the fold of SHGs and can stand as models to be emulated. Unless this is pursued seriously by the department concerned, the efforts taken and resources spent on the TANWA training programme will prove futile. It is encouraging to note that some efforts in these lines are already on the anvil, still a lot remains to be done by both governmental and non governmental organizations.

7.6. Suggested area for future research

The following research studies are recommended for future research.

- Constraints faced by TANWA officials in implementing the programme,
- A study on Impact of TANWA on farm women,
- Studies on successful and failure cases.
- Conversion of TANWA group into self help group in Tamil Nadu.
- Spread effects of TANWA.