CHAPTER - V

SUMMARY AND CONCLUSION

This chapter provides comprehensive information on the systematized efforts undertaken for the empirical study with a focus on the emerged findings. The detail of the research carried out are presented briefly in the succeeding pages.

As the globe is awakened to the calls of environmental problems and health hazards, more and more people are showing interest in natural, safer and economical herbal medicines rather than the expensive chemical drugs that have many side effects. World Health Organisation (WHO) has estimated that 80.00 per cent of the population in developing countries rely on traditional medicines; mostly plant drugs, for their primary health care needs. India has about seven lakh-registered practitioners belonging to Ayurveda, Unani, Sidha, Tibetan, etc. These systems of medicine solely depend upon herbal products for medical treatment.

Total global market for medicinal plants is worth about 150 billion dollars and India's share is only 1.3 billion dollars (0.9 per cent). India's dismal performance in the global trade can be attributed to many factors. Among these, the major problem is that India exports only 30.00 per cent
of the commodity in the processed form and bulk of 70.00 per cent in raw form thereby causing loss in employment as well as foreign exchange reserves. Besides, over 90.00, per cent of medicinal plants are collected from the wild source, very often in a destructive and unsustainable manner (Natesh and Ram, 1999).

India is said to be the home to 8,000 species out of 21,000 species used for medicinal purpose in the world. Around 800 species are used by industries and out of which 25.00 per cent are cultivated (NBPGR, 1996). This rich bio-diversity together with diverse agro-climatic conditions provides unlimited opportunities for India to cultivate a variety of medicinal plants demanded by the market.

The demand for medicinal plants in India - to meet both domestic and export market - comprising 162 species, is expected to increase at about 15-16 per cent between 2002 and 2005 (CRPA, 2001). The current gap between demand and supply is estimated to be 40,000 to 2,00,000 tonnes, which is expected to rise to 1.52,000 to 4,00,000 tons by 2005 (Planning Commission, 2000 and CRPA, 2001). This indicates that we have not capitalized the market, neglecting the export of medicinal plants, especially finished and the processed crude drugs exports. This gap, together with the opening of international market for trade and
commerce under WTO regime, provides opportunities for India to become a global leader in marketing of medicinal plants.

Tamil Nadu, situated at the southern tip of India is blessed with diverse ecological habitats, which harbour and sustain immense plant diversity with a total area under medicinal and aromatic plants of about 7000 ha. It not only ranks first in the production of senna, but also produces superior quality periwinkle and gloriosa products in the world. Senna, periwinkle and ashwagandha are grown more in Tirunelveli and Ramanathapuram districts, whereas glory lily, ashwagandha and Coleus are found in Salem, Namakkal, Madurai and Dindigul districts.

Dindigul and tuticorin has suitable agro-climatic conditions for cultivation of medicinal plants. There is a need to take up a systematic approach towards cultivation of medicinal plants to provide a consistent supply of medicinal plant produce of international quality. Coleus is one of the medicinal plants widely cultivated by the farmers in the district.

Knowledge are the important pre-requisites for adoption. Hence, it is imperative to study the knowledge and adoption of different recommended practices by the medicinal plant farmers in their cultivation. Hence, the study entitled “A study on knowledge, adoption and marketing behaviour of medicinal plant growers” was proposed to
analyse the three majore dimensions viz., knowledge, adoption and marketing behaviour of glorylily and senna growers with the following specific objectives.

1. To study about the profile characteristics of medicinal plant growers.

2. To find out the knowledge of medicinal plant growers on the cultivation of selected medicinal plants.

3. To assess the extent of adoption of recommended cultivation practices of selected medicinal plants by the medicinal plant growers.

4. To identify the marketing behaviour of medicinal plant growers.

5. To analyse the relationship between the characteristics of the medicinal plant growers with their extent of adoption of recommended medicinal plant technologies.

6. To identify the constraints faced by medicinal plant growers in the adoption of medicinal plants technologies.

The study was taken up in Dindigul for glorylily and Tuticorin district for senna of Tamil Nadu. A sample size of 200 medicinal plants
cultivators belonging to two different medicinal plants viz., glorylily and senna was selected by using random sampling technique.

Twelve socio-economic and psychological characteristics were selected for the study. The selected independent variables were age, educational status, occupational status, farm size, area under medicinal plant cultivation, social participation, extension agency contact, mass media exposure, risk orientation, scientific orientation, cosmopolitaness and export potentiality. They were measured by using appropriate tools and scoring procedures.

The adoption index was developed and used to assess the extent adoption of medicinal plants technologies. Similarly marketing behaviour were also studied in different dimension. Further, the constraints faced by the medicinal plants growers in adoption of medicinal plants technologies was identified. The required data were collected by personal interview utilizing a well structured and pre-tested interview schedule. The collected data were tabulated and analysed using appropriate statistical tools. The salient findings are presented below.
5.1 Salient findings of the study.

5.1.1. Characteristics of respondents

5.1.1.1. Characteristics of glorylily growers involved in medicinal plant cultivation

Most of the respondents were primary school education, had farming as a sole profession, majority of them were middle aged and belonged to small farmers and low level of area under cultivating medicinal plants. Majority of them were belonged to medium level of social participation, extension agencies contact, mass media exposure, risk orientation, scientific orientation, cosmopolitaness and export potentiality.

5.1.1.2. Characteristics of senna growers involved in medicinal plants cultivation

Most of the senna grower were primary school education, had farming as a sole profession, possessed in small size of land holding and low level of area under medicinal plants. Majority of them were middle aged, belonged to medium level of social participation, extension agency contact, mass media exposure, risk orientation, scientific orientation, cosmopolitaness and export potentiality.
5.1.2. Knowledge level

5.1.2.1. Knowledge level on recommended cultivation practices of glory lily.

The overall knowledge level of recommended practices of glory lily had medium level followed by high level of knowledge.

5.1.2.2. Knowledge level on recommended cultivation practices of senna

The overall knowledge level of recommended practices of senna had medium level followed by high level of knowledge.

5.1.3. Extent of adoption

5.1.3.1. Overall adoption of recommended practices of glorylily cultivation.

The overall adoption level of recommended practices of glorylily had medium level followed by high level of adoption.

5.1.3.2. Practice wise adoption of recommended technologies in glorylily cultivation

In case of glorylily cultivation, majority of them had adopted land preparation (100.00 per cent), pandal (10.00 per cent), harvest (100.00 per cent), tubers and showing (80.00 per cent), manures and fertilizer (75.00 per cent) and irrigation (68.00 per cent).
5.1.3.3. Overall adoption of recommended practices of senna cultivation

The overall adoption of recommended practices of senna had medium level of adoption followed by high level of adoption.

5.1.3.4. Practice wise adoption of recommended technologies in senna cultivation

In senna technologies, cent per cent of the respondents were adopted in land preparation and harvest followed by seeds and sowing (90.00 per cent), manures and fertilizer (80.00 per cent), plant protection (75.00 per cent) and weed management (50.00 per cent).

5.1.4. Marketing behaviour

5.1.4.1. Marketing channel for glorylily.

5.1.4.1.1. Marketing channel for tubers of glorylily

The major channel for tubers of glorylily were collector-broker-local trader-farmer.

5.1.4.1.2. Marketing channel for seeds of glory lily

Among, the three most widely used channel was farmer-broker-exporter with fifty per cent of the respondents were followed.

5.1.4.1.3. Method of price fixation of glorylily

The respondents adopted two major practices, i.e. negotiation with exporters, farmers receiving the determinate price from broker.
5.1.4.1.4. Post harvest management of glory

The matured pods were harvested manually and sundried followed by separated from pods and seeds are stored in empty fertilizer bags. The seeds were dried until the moisture content came down 10.00 to 12.00 per cent.

5.1.4.1.5. Mode of transport of glorylily

The major sources of market information for glorylily like fellow farmers and friends with the mean score of (2.51) followed by brokers (2.10), local merchants (1.56), exporters (0.90) and input dealers (0.75).

5.1.4.2. Marketing channel for senna

5.1.4.2.1. Marketing channel for leaves of senna

The most popular channel was farmer commission agents – exporter, it was observed that 80.00 per cent of the farmers sold their commodity to commission agents.

5.1.4.2.2. Marketing channel for seeds of senna

Commission agents were the primer source for the purchase of seeds. Majority of them used commission agents – exporter as a prime channel for marketing senna seeds.

5.1.4.2.3. Method of price fixation of senna

The main m was method of price fixation was negotiation.
5.1.4.2.4. Mode of transport of senna

The transport of commodity by farmers to commission agents was through either tractor or tempo.

5.1.4.2.5. Sources of marketing information for senna

Fellow farmers and friends were ranked as most important source with a top mean score of 2.43. which was followed by commission agents (2.37), local merchants (2.77), input dealers (1.24) and exporter (0.80).

5.1.5. Relationship between the characteristics and their extent of adoption

5.1.5.1. Association and contribution of characteristics with adoption of glorylily technologies

Out of twelve independent variables, five variables viz., education status, social participation, extension agency contact, risk orientation and scientific orientation were found to have positive and significant association with adoption level of glorylily technologies. In regression analysis similar variables contributed positively and significantly towards adoption of glorylily technologies. The ‘f’ value was found to be statistically significant at 0.01 per cent level of probability.

5.1.5.2. Association and contribution of characteristics with adoption of senna technologies

Five variables were found to have positive and significant association with adoption of senna technologies. They were educational
status, social participation, extension agency contact, risk orientation, and scientific orientation. Similar variables had shown positive and significant contribution towards adoption of senna cultivation technologies.

5.1.6. Constraints in the adoption of technologies

5.1.6.1 Constraints in cultivation of glory lily.

The major cultivation constraints as reported by majority of the respondents were loss of tuber during storage (100.00 per cent), high level of risk (100.00 per cent), death of plants in the field (100.00 per cent), high level of investment (85.00 per cent), lack of extension support (80.00 per cent) and scarcity of irrigation water (75.00 per cent).

5.1.6.2. Constraints in marketing of glorylily

The marketing constraints expressed by the respondents were unavailability of organized marketing, uncertainty about future price (90.00 per cent) unavailability of quality planting material (85.00 per cent) and lack of credit facilities (80.00 per cent).

5.1.6.3. Constraints faced by respondents in the adoption of senna technologies

5.1.6.3.1. Constraints in cultivation of senna

The cultivation constraints were lack of assistance from government (92.00 per cent), lack of technical support by extension
department (84.00 per cent) and subsidy not reaching the needy people (50.00 per cent).

**5.1.6.3.2. Constraints in marketing of senna**

Highly fluctuating price for senna (100.00 per cent), oligopolistic control over senna trade (92.00 per cent), producer not being able to fix the price (82.00 per cent) and lack of co-operation among farmers (76.00 per cent) were the major marketing constraints as reported by majority of the senna growers.

**5.2. Implications of the study**

On the basis of the salient findings of the study entitle “A study on knowledge, adoption and marketing behaviour of medicinal plant growers” certain broad implications were drawn and presented below.

1. Most of the respondents were found to have medium level of knowledge about the recommended medicinal plant cultivation practices. It is recommended to the state Department or Agriculture and Horticulture to make more and frequent contacts for increasing the awareness, knowledge, and adoption level of the medicinal plant growers.

2. Adoption of medicinal plant technologies was found to be medium. Hence, it is suggested to offer more number of training programmes on medicinal plant cultivation practices.
3. With respect to practice wise adoption of medicinal plant technologies, low adoption was found against the practices, viz., cross pollination and weed management. Hence it is suggested to design more number of trainings in these subject matter areas. Method demonstration, seminars and group discussions may be organized so as to enhance their adoption level in these aspects.

4. The characteristics namely educational status, social participation, extension agency contact, scientific orientation, and risk orientation were found to have significant relationship with the adoption level. Hence, these factors may be taken into consideration in the dissemination of technologies in medicinal plant cultivation.

5. The extension system is not equipped to deal with the new crops like medicinal plants and new areas like marketing extension to cater the pressing needs of the farmers. The payment based extension services can be tried in the high value crops like glory lily. However, the dry land areas and low value crops like senna may need the support of the public extension.

6. The medicinal plants need the development of new technologies and practices to ensure higher and quality produce. So it is
imperative to develop varieties of region specific, high alkaloid content, disease resistance and high yield. This would serve the needs of farmers, traders and companies.

7. Development of seed bank would cater not only the needs of cultivation but also help to conserve the natural resource against depletion. The quality seed would also ensure that uniform and standard material is produced for market.

8. Medicinal plants could be a component in the development of wastelands. The senna could be suggested for wastelands in the arid and semi-arid climatic conditions. Similarly, the areas of low irrigation water with higher resource can choose the high value crops like glory lily.

9. Specialized training on cultivation, disease and pest management, post harvest practices and quality standards are necessary for farmers and extension personnel as well.

10. The long marketing chain and unorganized system- should be replaced with institutionalized marketing mechanism for bringing transparency in the medicinal plants trade. Specialized cooperative or regulated markets can be a focal point to ensure fair trade in the medicinal plants sector.
11. Mass media like radio and television must be used to provide market information to farmers. ICT tools must be made use of to gather information and spread to user of various kinds.

12. Minimum floor price as a price stabilizing tool can be used to for commodities in which India has monopoly in the world market.

13. Government support in the form of marketing, storage, value addition, processing must be extended to private sector to develop in the new area.

14. Farmers’ associations and farmers interest groups must be organised around individual commodities of medicinal plants. The extension organization can use their expertise to mobilize farmers towards this task.

15. The quality control laboratories of higher standards should be established to provide technical back up for quality maintenance.

16. To increase the production and marketing among the farmers, the major constraints like improper availability of seed/planting materials, high cost labour, lack of fixed price policy for medicinal plant by the government and lack of proper marketing channel must be taken into consideration. The linkage between the
extension personnel and medicinal plant growers must be strengthened. Technical guidance may be provided in all the stages of management of medicinal plant cultivation.

**Suggestions for future research**

1. This study confines to a particular agro-climatic zone. Similar studies may be carried out in the other medicinal plant growing areas of different agro-climatic zones in the state in order to have generalization.

2. An analysis on the extent of adoption of medicinal plant growers from different socio-economic status may be taken up.

3. An action research involving researchers, farmers and extension officials can be taken up for improving the awareness, knowledge and adoption level of medicinal plant growers.

4. Case studies on success stories of medicinal plant cultivation and marketing could be made in order to formulate strategy to increase the production and income level of farming community.