# ADOPTION OF RECOMMENDED PACKAGE OF PRACTICES BY THE COCONUT FARMERS OF MAHE REGION IN UNION TERRITORY OF PONDICHERRY

*By*

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## CERTIFICATE

**Mr. K. SAJITH KUMAR** has satisfactorily prosecuted the course of research and that the thesis entitled "**ADOPTION OF RECOMMENDED PACKAGE OF PRACTICES BY THE COCONUT FARMERS OF MAHE REGION IN UNION TERRITORY OF PONDICHERRY"** submitted is the result of original research work and is of sufficiently high standard to warrant its presentation to the examination. I also certify that the thesis or part thereof has not been previously submitted by him for a degree of any University.

Date:

Place: Tirupati

**(Dr. K. NAGI REDDY)**
Major Advisor

## CERTIFICATE

This is to certify that the thesis entitled "**ADOPTION OF RECOMMENDED PACKAGE OF PRACTICES BY THE COCONUT FARMERS OF MAHE REGION IN UNION TERRITORY OF PONDICHERRY"** submitted in partial fulfillment of the requirements for the degree of **Master of Science in Agriculture** of the Acharya N.G.Ranga Agricultural University, Hyderabad is a record of the bonafide research work carried out by **Mr. K. SAJITH KUMAR** under our guidance and supervision. The Student's Advisory Committee has approved the subject of the thesis.

No part of the thesis has been submitted for any other degree or diploma. The published part has been fully acknowledged. The author of the thesis has duly acknowledged all assistance and help received during the course of the investigations.

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## DECLARATION

I**, K. SAJITH KUMAR** hereby declare that the thesis entitled "**ADOPTION OF RECOMMENDED PACKAGE OF PRACTICES BY THE COCONUT FARMERS OF MAHE REGION IN UNION TERRITORY OF PONDICHERRY"** submitted to Acharya N.G.Ranga Agricultural University, for the degree of **Master of Science in Agriculture** is the result of original work done by me. I further declare that the thesis or part thereof has not been published earlier elsewhere in any manner.

Date: **K. SAJITH KUMAR**

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## ABBREVIATIONS USED

**ANTWA** : Andhra Pradesh Training of Women in Agriculture

**AO** : Agricultural Officer

**DDA** : Deputy Director of Agriculture

***et al.*** : and others

**Fig.** : Figure

**FTC** : Farmers Training Centre

**i.e.** : That is

**JDA** : Joint Director of Agriculture

**KVK** : Krishi Vigyan Kendra

**'n' ach.** : Achievement motivation

**NGO** : Non Governmental Organization

**TANWA** : Tamil Nadu Women in Agriculture

**VEW** : Village Extension Worker

**Viz.** : Namely

**%** : Percentage

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## ABSTRACT

Coconut is a plantation crop grown mainly in southern and northeastern parts of the country with a total cultivated area of about 1.89 million hectares and production of 12821.70 million nuts, as per the statistics of 2001-2002. India stands first in production and third in area among eighty coconut producing countries all over the world. In India Kerala state occupies the first position in area and production followed by Karnataka and Tamil Nadu. Productivity of coconut in India ranges from 2121 nuts/ ha in Tripura to 19667 nuts/ ha in Lakshadweep. This wide range in productivity may be due to multitude of reasons like quality of seed material, incidence of pests and diseases, geographical and weather factors etc. However, the role of farmers in adoption of recommended package of practices is vital in increasing the productivity and thereby the total production of coconut in he country.

The present investigation was undertaken with the main objective of identifying the level of knowledge and adoption of recommended package of practices by the coconut farmers of Mahe region of Union Territory of Pondicherry.

Ex-post-facto research design was adopted for the study duly following proportionate random sampling technique and the sample comprised 150 farmers with minimum 20 cents of land, from all the five villages of the study area-Mahe.

A rating scale was developed for measuring knowledge while an index was constructed to measure the extent of adoption of recommended practices.

Fifteen explanatory (independent) variables were considered and subjected to different statistical analysis for the purpose of categorization of the respondents and for studying their relationship with predicted variables (knowledge and adoption).

The data gathered with the help of structured interview schedule were coded, tabulated and analyzed statistically.

Major chunk of the farmers had medium levels of knowledge and adoption of recommended package of practices.

Analysis of profile characteristics revealed that majority of the clientele were old aged; educated up to high school, with medium farming experience, most of them being marginal farmers and having farming alone as their main occupation, possessing medium

extension contact, economic motivation, scientific orientation, management orientation, achievement motivation, mass media exposure and risk orientation, and with low social participation, innovativeness and training undergone.

In correlation analysis the independent variables education, farming experience, farm size, occupation, social participation, extension contact, economic motivation, scientific orientation, management orientation, innovativeness, 'n' ach., mass media exposure, training undergone and risk orientation had positive and significant relationship with knowledge of the farmers about recommended package of practices of coconut. Age alone was positively but non significantly related with the regressed variable.

Extent of adoption of recommended package of practices by the respondents was positively and significantly correlated with education, farming experience, farm size, occupation, social participation, extension contact, economic motivation, scientific orientation, management orientation, innovativeness, achievement motivation and training undergone of the subjects. However, age, mass media exposure and risk orientation expressed positive but non significant relationship with the predicted variable.

Regression analysis revealed that all the fifteen selected antecedent variables put together explained about 56.70 per cent variation in knowledge levels of the coconut farmers. Farm size, scientific orientation and achievement motivation had positively and significantly contributed to most of the variation in the dependent variable.

Contribution of all the fifteen regressor variables on adoption of the respondents was 57.61 per cent with farm size, social participation and achievement motivation contributing positively and significantly a lion's share in the variation of the consequent variable.

The prime constraints faced by the farmers were in the rank order of: Inadequate farm labour, high cost of labour, non availability of hybrid seedlings, lack of sufficient government institutions to procure coconut, lack of agro industries to control fluctuation in prices and also to fetch more prices, inadequate family labour, inadequate input availability, poor market education to farmers, lack of technical guidance, non conduct of farmers trainings frequently, lack of input availability and non availability of extension personnel for consultation.

Suggestions propelled by the respondents to overcome the constraints that cumber their adoption level included, providing required quantities of inputs exactly at the time of requirement, providing labour or labour subsidy through Agriculture Department, establishment of procurement centers for coconut under the control of government, impart increased number of trainings to farmers in scientific cultivation aspects, increase the efficiency of extension staff, provide agricultural loans, take steps for effective control of Eriophid mite, provide crop insurance facilities, provide labour insurance scheme to all agricultural labour, provide facilities for product diversification, provide marketing facilities for tender coconut and provide market intelligence to farmers.

# CHAPTER I

## INTRODUCTION

The Coconut palm (*Cocos nucifera*) is often been called 'Kalpavriksha' because each and every part of the tree is used by human kind for one or the other purpose in different forms and ways. 'Tree of Life' is another synonym as it provides food, drink, fuel and timber to those who grow it. Aesthetic importance of the tree has donated the name 'Tree of Heaven'. In history it is valued as oil and food crop as old as 3000 years.

The origin of coconut is believed to be Malaysia or Indonesia and is now cultivated in more than eighty countries all over the world. Coconut is highly productive, starting bearing from $5^{th}$ (hybrids and dwarf varieties) to $8^{th}$ (tall varieties) year of planting up to an age of 40 years (hybrids and dwarf varieties) to 60 years (tall varieties). Getting an average of 60 nuts per tree per year is easily achieved without much effort beyond gathering the nuts.

Among the eighty countries contributing to the production of 54,200 million nuts from an area of 11.91 million hectares, India stood third in area (1.89 million hectares) and first in production (12,821.70 million nuts) and productivity (6,776 nuts per hectare) during 2001-2002. This production amounts to 26.06 per cent share in production from 15.51 per cent share of area in the global level. About ten million people in the country are depending on coconut cultivation, processing and other related activities for their

livelihood. About 55 to 60 per cent of the total populations consume coconut as a food item. Foreign exchange earned by the export of coir was more than Rs. 313 crores during 2001-2002. Of the total production, 34 per cent of nuts are converted as milling copra, which is used for the production of coconut oil, 40 per cent for direct consumption and culinary purpose and the remaining 26 percent is used for aesthetic purposes. 20 per cent of total oil production is used for edible purpose, while 60 per cent is used for toiletry purpose and 20 percent is consumed by various industries.

In India coconut occupies large areas in the southern states namely Kerala, Karnataka, Tamil Nadu and Andhra Pradesh. Kerala holds the rank of numero uno in both area and production with 5744 million nuts from 0.94 million hectares annually. Maharashtra, Assam, West Bengal and Goa are the other important states with coconut as a crop in India. Among union territories Andaman and Nicobar Islands stands first in area with 25,200 hectares while Pondicherry has an area of 2700 hectares under the crop. Mahe region, being embedded geographically in Kerala state, is a traditional tract of coconut cultivation and the crop occupies 85.83 per cent of the gross cropped area.

## 1.1 NEED AND IMPORTANCE OF THE STUDY

Having realized the important role, played by coconut in enhancing the foreign exchange and providing employment to lakhs of people, the Government of India felt it necessary to undertake a special scheme for the development of coconut namely, ‘Coconut Development Scheme’. This scheme was launched during 1981 at the national level and the implementation of the scheme was to be done through the Department of

Agriculture at state/ U.T. level. An apex body namely 'Coconut Development Board' was established for constant watching and monitoring of the schemes as well as to serve as an intermediary between the Government of India and the states/ U.Ts in implementing the scheme. The objective of the scheme is to increase the area as well as production and productivity of coconut all over the country. In the Union territory of Pondicherry this scheme started implementing from the year 1991- '92 through the Department of Agriculture. In addition to this, the state and union territory governments are also implementing various coconut development programmes with the same objective.

In spite of various coconut development programmes like assistance for area expansion under coconut, new planting with seedlings of high yielding varieties, assistance for adoption of recommended package of practices, rehabilitation of diseased, senile gardens etc. the production from coconut has not shown the required increase corresponding to the area of cultivation. This may be due to different reasons like quality of seed materials, incidence of pests and diseases etc. But the main reason may be the non-adoption of recommended package of practices by the farmers. Among the different coconut growing states and union territories in India, the productivity ranges from as low as 2121 nuts per hectare in Tripura to as high as 19,667 nuts per hectare in Lakshadweep. Productivity of coconut in Union Territory of Pondicherry is 11,000 nuts per hectare (Appendix-I) while that in Mahe region is only 9,600 nuts per hectare. This reveals that there is an immense scope for increasing the productivity, which may be achieved if the farmers adopt the recommended package of practices. In an area like Mahe, where expansion of area under coconut cultivation is of no scope the only way to increase the production is to increase the productivity through adoption of recommended package of

practices. However, in the absence of any systematic study on the knowledge level, extent of adoption and different constraints faced by the farmers in adoption, it may not be possible to point out the actual reasons for the gaps in productivity.

## 1.2 OBJECTIVES OF THE STUDY

Keeping the above needs and importance in view, this study on 'Adoption of Recommended Package of Practices by the Coconut Farmers of Mahe Region in Union Territory of Pondicherry' was ideated with the following specific objectives.

1.2.1 To study the personal, socio psychological and situational characteristics of the coconut farmers.

1.2.2 To assess the knowledge of the coconut farmers towards the recommended package of practices of coconut production.

1.2.3 To determine the extent of adoption of recommended package of practices of coconut production by the farmers.

1.2.4 To find out the relationship between personal, socio psychological and situational variables and the selected dependent variables.

1.2.5 To find out the constraints that influence the extent of adoption of recommended package of practices of coconut production.

1.2.6 To elicit suggestions to obviate the constraints faced by the farmers in adopting the coconut production recommendations.

## 1.3 SCOPE OF THE STUDY

This study was undertaken to understand the knowledge level, extent of adoption of recommended package of practices of coconut and the constraints faced in adoption of technologies by the coconut growers in Mahe region. So far this type of study has not been attempted in this region. Hence it is a pioneering study in this direction. The findings of the study would reveal the characteristics of the respondents, which may be of great help to the extension workers in formulating different strategies suited to different clientele. The findings on extent of adoption of recommended farming practices would help the extension workers to know the level of application of different practices recommended by the agencies into the field by the farmers. This would help extensionists to concentrate on popularization of the practices among the farming community through various methods like demonstrations, trainings, field visits, exhibitions etc.

A probe into the constraints faced by the respondents in adoption of recommended package of practices of coconut, would serve as an eye opener for the extension administrators to correct their strategy, if required, and even the planners could make subtle changes in the programmes.

## 1.4 LIMITATIONS OF THE STUDY

The present investigation has suffered from the limitations of time, funds and other research facilities commonly faced by a single student investigator. These limitations are indicated below.

1.4.1 Consequent to lack of time and funds Mahe region of Union Territory of Pondicherry alone was selected for study purpose.

1.4.2 Even though the entire Mahe region comprising of five villages was selected for study purpose, the sample area account to only 9 square kilometers due to the restriction of geographical boundaries.

1.4.3 Another limitation of the study lies with the sample size. This being a single student project it was not possible to take large sample.

Despite these limitations, the findings of this study can be extrapolated to other comparable areas as relevant and applicable in varying degrees.

## 1.5 PRESENTATION OF THE STUDY

This study is presented under six chapters and each chapter has been devoted a clear exposition of the various aspects of the main theme.

**Chapter 1: '**INTRODUCTION' giving a brief account of importance of coconut, need for study, specific objectives, the scope as well as limitations of the study.

**Chapter II:** 'REVIEW OF LITERATURE' which deals with the past studies related to the present study.

**Chapter III:** Devoted for describing the 'MATERIALS AND METHODS' of the study including statistical tools.

**Chapter IV:** Dealt with 'RESULTS' of the study.

**Chapter V: ‘**DISCUSSION’ based on the results was made in this chapter.

**Chapter VI:** Dealt with ‘SUMMARY’ consisting implications of the findings and ink links for future research.

The ‘LITERATURE CITED’ and ‘APPENDICES’ are given at the end.

# CHAPTER II

# REVIEW OF LITERATURE

A comprehensive review of literature is an essential part of any investigation. It helps to know the previous research work done in that area and act as a torch bearer for new research work in addition to helping the researcher to get an insight into methods and procedures. An acquaintance with earlier pertinent studies has been felt necessary to develop good understanding of the present study. It not only gives an idea on the work done in the past and assists in delineation of problem area, but also, provides basis for interpretation and discussion of result. This study was a pioneering one and no previous study was done on coconut in the area of investigation. In view of the above fact, earnest efforts were made to collect the available research finding on the subject possessing similar characteristics, which were reviewed and presented in this chapter under the following headings.

2.1 Personal, socio psychological and situational characteristics of farmers.

2.2 Knowledge of farmers about recommended package of practices

2.3 Extent of adoption of recommended package of practices by farmers

2.4 Relationship between the personal, socio psychological and situational characteristics of farmers and their knowledge

2.5 Relationship between the personal, socio psychological and situational characteristics of farmers and their extent of adoption

2.6 Constraints experienced by farmers in adoption of recommended package of practices

2.7 Conceptual model of the study

## 2.1 PERSONAL, SOCIO PSYCHOLOGICAL AND SITUATIONAL CHARACTERISTICS OF FARMERS

### 2.1.1 Age

Haridasan (1995) reported that majority of (67.55%) of coconut growers were of medium age group followed by high age group (19.56%) and low age group (12.89%).

Venugopal Rao (1996) reported that majority (45.83%) of the coconut farmers belonged to middle age group followed by old age (35.00%) and young age (19.17%) groups respectively

Chanda Srivastava (1997) inferred that 55.00 per cent of the coconut farmers belonged to old age group followed by middle age (40.00%) and young age (5.00%) groups

Thomas (2000) revealed that more than half (54.00%) of the medicinal plant growers belonged to low category with respect to age.

Sathish Rahul (2003) found that large numbers of respondents (38.33%) were of middle age followed by young (31.67 %) and old (30.00%) age respectively.

Sivasubramanian (2003) revealed that majority (55.00%) of the coconut farmers belonged to old age group followed by middle age (40.00%) and young age (5.00%) categories.

### 2.1.2 Education

Singha (1991) reported that two thirds of the respondents were in high educational level.

Venugopala Rao (1996) revealed that the coconut farmers included functionally literate (23.33%), primary school education (22.50%), illiterate (21.67%), collegiate education (17.50%) and middle school and high school education (7.50%) each.

Chanda Srivastava (1997) observed that highest percentage (30.00%) of the respondents had no schooling followed by those with high school education (23.38%), middle school (20.00%), primary school (13.34%), functionally literate (10.00%) and collegiate education (3.33 %).

Venkattakumar (1997) found that (38.05%) of the coconut farmers he has studied possessed medium level of education followed by low (34.52%) and high (27.43%) levels of education.

Seema (1999) inferred that little more than one third (36.67%) of coconut growers had education up to primary level. Two fifth each (20.83%) of the respondents were illiterates and functionally literates while those with middle level education consisted 12.50 per cent followed by those having education up to secondary level (9.17%). There were none with collegiate level of education.

Sivasubramanian (2003) indicated that majority (35.00%) of the coconut farmers had primary school education followed by those having education up to middle school (18.33%), higher secondary school (15.00%), secondary school (12.50%) those can read and write (10.00%) and those can read only (9.17%)

Anitha Kumari and Jessy George (2003) reported that majority (71.30%) of the respondents had school education followed by those with pre degree (21.50%), graduated (7.00%), post graduates (0.20%) among the SHG members running coconut based enterprises.

### 2.1.3 Farming Experience

Haridasan (1995) inferred that 64.89 per cent `of the respondents had medium level of farming experience while 17.78 per cent and 17.33 per cent had high and low farming experience in coconut cultivation.

Venugopala Rao (1996) reported that majority (60.84%) of the respondents had maximum experience in coconut cultivation followed by those with minimum experience (23.33%) and average farming experience (15.83%).

Payal (1999) revealed that 50.83 per cent of the respondents had low level of farming experience in coconut cultivation with less than 12 years of experience. Nearly one fourth (25.84%) had high level of experience followed by those having medium level of experience (23.33%).

Seema (1999) observed that nearly half (49.18%) of the respondents possessed low level of farming experience, whereas nearly one third (34.16%) had medium level of experience and the rest 16.66 per cent had high level of farming experience.

Venkattakumar and Nanjaiyan (1999) found out that 50.00 per cent of the respondents had low level of farming experience where as 33.63 per cent had medium level and 16.37 per cent had high level of farming experience.

Kumar (2002) observed that 44.17 per cent of hybrid jowar seed production farmers had medium level of farming experience followed by low (30.83%) and high (25.00%) levels of farming experience.

Sivasubramanian (2003) reported that majority (58.34%) of the respondents had higher level of experience in coconut cultivation followed by medium level (26.66%) and low levels (15.00%) of experience.

### 2.1.4 Farm Size

Haridasan (1995) observed that majority (80.89%) of the coconut growers had medium extent of land holding while 11.55 per cent had high extent and 7.56 per cent had low extent of land holding

Kamaraj (1996) revealed that more than two third (73.33%) of the respondents were having less than 5 acres of dry land followed by 21.67 per cent having 5 to 10 acres of dry land and 5 per cent having more than 10 acres of land.

Venugopala Rao (1996) reported that majority (43.33%) of the farmers were marginal farmers having less than 2.5 acres of dryland followed by 34.17 per cent of small farmers with 2.5 to 5 acres of dry land and 22.5 per cent of big farmers with more than 5 acres of dryland.

Chanda Srivastava (1997) inferred that 35 per cent of the respondents had large farm size followed by those having medium size (33.33%) and small size (31.67%) holdings.

Sathish Rahul (2003) indicated that 46.67 per cent of the papaya growers had small farm size followed by medium (31.67%) and large (21.66%) farm size.

Sivasubramanian (2003) reported that majority (62.50%) of the coconut farmers were marginal farmers followed by small farmers (31.67%) and medium farmers (5.83%) with 5-10 acres of land.

Anitha Kumari and Jessy George (2003) stated that among the SHG group members they have studied majority (43.00%) had land holdings of 26 to 50 cents followed by those with more than 50 cents (29.50%) and less than 25 cents (27.50%).

### 2.1.5 Occupation

Ramamurthi (1994) revealed that majority of the farmwomen (85.00%0 had agriculture as their main occupation.

Venugopala Rao (1996) found that 58.33 per cent of the respondents had a subsidiary occupation in addition to coconut cultivation followed by 30.83 per cent having cultivation only as main occupation and 10.84 per cent having cultivation as well as labour as their main occupation.

Chanda Srivastava (1997) observed that 31.67 per cent of the respondents fell in the category of agriculture as main occupation with business as subsidiary occupation, followed by those having agriculture alone as main occupation (30.00%), those in government service in addition to agriculture (25.00%) and those having fishing in addition to the main occupation of agriculture (13.33%).

Jyothimani (1999) inferred that most of the respondents (92.5%) were found to have agriculture as their primary occupation followed by 7.50 per cent with agriculture as their secondary occupation.

Anitha Kuamri and Jessy George (2003) found that among the respondents 39.00 per cent were housewives followed by others (21.50%), skilled laborers (20.50%) and agriculturists (19.00 %).

Sivasubramanian (2003) indicated that majority of the respondents (58.33%) had agriculture as their primary occupation followed by those having farming and business and farming and independent profession (12.50% each), farming and services (10.00%) and farming and labour (6.67%) as their occupation among coconut farmers.

### 2.1.6 Social Participation

Jayakumar (1994) reported that most of the respondents (94.16%) had low level of social participation.

Venugopala Rao (1996) inferred that majority (65.83%) of the respondents had no membership in any organization while 25.00 per cent had member ship in any one organization. 7.50 per cent of the respondents were office bearers and 1.67 per cent had membership in more than one organization

Chanda Srivastava (1997) found that 46.67 per cent of the respondents belonged to medium level of social participation category followed by low (35.00%) and high (18.33%) levels of social participation categories.

Sreenivasan (1999) indicated that majority (63.34%) of the respondents had medium level of social participation.

Kumar (2002) revealed that majority (59.17%) of the respondents had medium level of social participation followed by low (25.00%) and high (15.83%) levels.

Hemanth Kumar (2002) revealed that 70.00 per cent of the oriental tobacco farmers had medium social participation followed by high (18.33 %) and low (11.67%) levels of social participation.

Sivasubramanian (2003) reported that majority (52.50%) of the respondents had medium level of social participation followed by low level (34.17%) and high level (13.33%) of social participation among coconut growers.

### 2.1.7 Extension Contact

Subashini (1996) reported that majority (84.17%) of the tapioca growers had medium level of contact with extension agency followed by low (10.00%) and high (5.83%) levels of extension agency contact.

Venugopala Rao (1996) found that majority (55.83%) of the respondents had high information source consultancy followed by 32.50 per cent having average and 11.67 per cent having less information source consultancy.

Chanda Srivastava (1997) revealed that majority (63.33%) of the respondents had medium extension contact while 20.00 percent and 16.67 per cent had low and high levels of extension contact respectively.

Thirumal (1998) indicated that majority (61.00%) of the respondents had low level of contact with extension agency followed by those having medium (28.00%) and high (11.00%) levels of extension contact.

Sivasubramanian (2003) observed that majority (60.84%) of the respondents he has studied had medium level of extension contact followed by those with low (30.83%) and high (8.33%) levels of extension contact.

### 2.1.8 Economic Motivation

Rama Rao (1992) reported that majority (40.00%) of the tobacco growing farmers were having low economic orientation followed by 35.83 per cent and 24.17 per cent with average and high economic motivation respectively.

Puthiraprathap (1994) stated that majority (84.7%) of the respondents had medium level of economic motivation.

Haridasan (1995) reported that 64.89 per cent of the respondents had medium level of economic motivation while 19.11 per cent had high and 16.00 per cent had low levels of economic motivation.

Venugopala Rao (1996) revealed that majority (56.66%) of the respondents had high economic motivation while 34.17 per cent had low and 9.17 pre cent had average economic motivation respectively.

Wadea (1998) inferred that majority of the farmers (69.17%) had medium economic motivation while 15.83 per cent and 15.00 per cent had high and low economic motivation respectively.

Hemanth Kumar (2002) observed that 47.50 per cent of the respondents had medium economic orientation followed by those having low (29.17%) and high (23.33%) economic orientation respectively.

### 2.1.9 Scientific Orientation

Haridasan (1995) reported that 52.44 per cent of coconut growers had high level of scientific orientation followed by those with medium (32.44%) and low (15.12%) scientific orientation.

Kamaraj (1996) found that majority (70.00%) of the respondents were possessing moderate to high level of scientific orientation while 30.00 per cent had low level of scientific orientation.

Venugopala Rao (1996) observed that 63.33 per cent of his respondents had average scientific orientation while 23.33 per cent had low and 13.34 per cent had high scientific orientation.

Alagirisamy (1997) noticed that half of the vegetable growers fell under medium category followed by low (27.50%) and high (22.50%) levels in their scientific orientation.

Arunadevi (1998) reported that majority (71.60%) of the respondents had medium level of scientific orientation followed by those having high (21.20%) and low (7.20%) levels of scientific orientation respectively.

Hemanth Kumar (2002) inferred that 70.84 per cent of the oriental tobacco framers had medium scientific orientation followed by those having low (18.33%) and high (10.83%) scientific orientation.

Sivasubramanian (2003) stated that among the coconut farmers 49.17 per cent had medium level of scientific orientation followed by those having high level (27.50%) and low level (23.33%) of scientific orientation.

### 2.1.10 Management Orientation

Haridasan (1995) stated that 66.67 per cent of the coconut growers he has studied had medium level of management orientation followed by those having high (17.77%) and low (15.56%) levels of management orientation.

Venugopala Rao (1996) revealed that 65.00 per cent of the respondents had average level of management orientation while 20.00 per cent had low and 15.00 per cent had high levels of management orientation.

Prasad (1996) reported that majority (76.00%) of cashew growers had medium ordination while 13.00 per cent had high and 11.00 per cent had low management orientation.

Dayanidhi (1997) stated that majority of small farmers (38.77%) and medium farmers (41.92%) were coming under medium orientation category where as majority of (52.63%) of large farmers were under high management orientation category.

Raj Kumar (2001) reported that 46.67 per cent of the respondents had medium management orientation followed by those having high (44.17%) and low (9.16%) management orientation respectively.

Diware (2002) observed that majority (79.26%) of respondents were orientated towards efficient planning, following better production techniques and marketing of orange to medium extent. Only 11.85 per cent of the orchardists had high level of management orientation with few (8.89%) belonging to the category of low management orientation.

Sathish Rahul (2003) noticed that 47.50 per cent of papaya growers had medium level of management orientation followed by those having low (33.33%) and high (19.17%) levels respectively.

### 2.1.11 Innovativeness

Haridasan (1995) stated that majority (55.11%) of the respondents had medium level of innovativeness followed by those having low (39.56%) and high (5.33%) levels of innovativeness.

Anothram (1996) reported that majority (66.00%) of the respondents had medium innovativeness followed by low (19.00%) and high (15.00%) innovativeness.

Chowdary (1997) stated that majority (66.67%) of farmers had medium innovativeness while others were equally (16.66%) distributed in to each of the low and high categories.

Mahitha Kiran (2000) inferred that (67.50%) of the respondents had medium innovativeness whereas 16.67 per cent had high and 15.83 per cent had low levels of innovativeness.

Hemanth Kumar (2002) observed that majority (68.33%) of the respondents had medium innovativeness followed by low (19.17%) and high (12.50%) levels of innovativeness.

Subrahmanyam (2002) indicated that majority (71.66%) of trained farmers had medium innovativeness followed by high (15.00%) and low (13.34%) levels of innovativeness.

### 2.1.12 Achievement Motivation

Reddy (1993) revealed that 55.67 per cent of the respondents had medium achievement motivation followed by those having high (26.33%) and low (18.00%) achievement motivation.

Reddy (1994) inferred that 36.67 per cent of dryland farmers had medium achievement motivation while 35.00 per cent had low and 28.33 per cent had high levels of achievement motivation.

Haridasan (1995) stated that majority of the coconut farmers belonged to medium level of achievement motivation.

Sabitha (1995) noticed that (71.67%) of the farm women belonged to medium achievement motivation category while 19.17 per cent had high and 9.16 per cent had low achievement motivation.

Sreedevi (1996) observed that an equal percentage (40.00%) of the farmwomen had medium and high achievement motivation while 20.00 per cent had low achievement motivation.

Hemanth Kumar (2002) indicated that majority (64.17%) of the oriental tobacco farmers had medium achievement motivation followed by high (20.00%) and low (15.83%) achievement motivation.

Sathish Rahul (2003) found that two fifth (40.00%) of the respondents had medium level of achievement motivation followed by those with high (32.50%) and low (27.50%) levels of achievement motivation.

### 2.1.13 Mass Media Exposure

Velusamy (1996) reported that 50.83 per cent of the respondents had low level of mass media exposure followed by those having medium (26.67%) and high (22.50%) levels of mass media exposure.

Chanda Srivastava (1997) revealed that 46.67 per cent of the respondents had high mass media exposure where as 40.00 per cent and 13.33 per cent of them had medium and low levels of mass media exposure respectively.

Thirumal (1998) observed that 61.00 per cent of the respondents had medium level of mass media exposure followed by those having low (23.00%) and high (16.00%) levels of mass media exposure respectively.

Hemanth Kumar (2002) noticed that majority (57.50%) of the respondents had medium mass media exposure followed by those having high (23.33%) and low (19.17%) level of amass media exposure respectively

Sathish Rahul (2003) inferred that majority (42.50%) of the papaya growers had medium level of mass media exposure while 36.67 per cent and 20.83 percent had low and high levels of mass media exposure respectively.

Sivasubramanian (2003) reported that majority (74.16%) of the respondents had medium level of mass media exposure followed by those having high (16.68%) and low (9.16%) levels.

### 2.1.14 Training Undergone

Chanda Srivastava (1997) revealed that majority (56.67%) of the coconut farmers had undergone trainings on coconut cultivation while 43.33 per cent have not undergone any training.

Sathasivam (1997) stated that 12.50 per cent of the respondents attended training in biofertilizers, while majority (87.50%) had not attended any training programme conducted by the state and central governments.

Sunitha (1998) stated that majority (64.17%) did not attend any training programme while 33.33 per cent have attended only one training and only 2.5 per cent have attended two training programmes.

Payal (1999) inferred that majority (68.33%) of the respondents did attend only one training programme while 31.67 per cent had attended two training programmes.

Sivasubramanian (2003) observed that majority (62.50%) of the coconut farmers had participated in few training programmes while 33.33 per cent had medium and 4.17 per cent had high levels of participation in training programmes.

### 2.1.15 Risk Orientation

Haridasan (1995) revealed that majority of the coconut farmers had medium level of risk orientation.

Kamaraj (1996) stated that 45.00 per cent of the respondents were seen in moderate category of risk orientation while 34.17 per cent had low level and 20.83 per cent had high level of risk orientation.

Muthaiya (1997) indicated that 47.50 per cent of mango growers had medium level of risk orientation followed by those having low (24.17%) and high (18.33%) level of risk orientation.

Reddy (1998) observed that majority (69.17%) of the respondents had medium level of risk orientation.

Subrahmanyam (2002) inferred that 75.00 per cent of the trained farmers had medium risk preference while 13.34 per cent had low and 11.66 per cent had high level of risk preference.

Hemanth Kumar (2002) inferred that (62.50%) of the oriental tobacco farmers had medium risk orientation followed by those having low (28.33%) and high (9.17%) level of risk orientation.

Sivasubramanian (2003) concluded that majority (60.83%) of the coconut farmers had medium level of risk orientation while 24.17 per cent had low and 15.00 per cent had high levels of risk orientation.

## 2.2 KNOWLEDGE OF FARMERS ABOUT RECOMMENDED PACKAGE OF PRACTICES

Nimje et al. (1991) found that 25.00 per cent of ber growers have sufficient knowledge of various aspects of ber cultivation.

Rama Rao (1992) revealed that 36.67 per cent of the tobacco farmers had average knowledge on cultivation practices while 32.50 per cent had low and 30.83 per cent had high levels of knowledge respectively.

Reddy (1992) reported that 67.50% of the mango growers had medium level of knowledge about recommended package of practices of mango.

Venugopala Rao (1996) stated that majority (68.33%) of farmers had average knowledge on critical practices of coconut cultivation followed by those having low (16.67%) and high (15.00%) knowledge levels.

Mallarayadu (1997) identified that two thirds (66.67%) of the sunflower growers had medium level of knowledge, while 20.83 per cent and 12.50 per cent had low and high level of knowledge on recommended production practices of sunflower cultivation.

Wadea (1998) observed that majority (68.33%) of respondents had medium knowledge about the potato production technology.

Hemanth Kumar (2002) inferred that majority (70.00%) of the respondents had medium knowledge about recommended oriental tobacco practices followed by those having high (17.50%) and low (12.50%) levels of knowledge.

Ravichandra Prasad (2002) concluded that 53.57 per cent of respondents had medium knowledge followed by those having high (28.57%) and low (17.86%) knowledge levels on recommended package of practices of rice crop.

Anitha Kumari and Jessy George (2003) highlighted that 43.00 per cent of the SHG members had medium knowledge about coconut production diversification aspects while 34.50 per cent had high and 22.50 per cent had low levels of knowledge.

## 2.3 EXTENT OF ADOPTION OF RECOMMENDED PACKAGE OF PRACTICES BY FARMERS

Singha (1995) stated that more than half (53.33%) of the coconut growers had low levels of adoption of recommended coconut cultivation practices while 25.00 per cent had high and 21.67 per cent had medium levels of adoption.

Venugopala Rao (1996) inferred that 36.67 per cent of the coconut growers had average level of adoption of critical practices of coconut cultivation followed by those having low (33.33%) and high (30.00%) level of adoption.

Chanda Srivastava (1997) indicated that majority (73.33%) of the respondents belonged to medium adoption category followed by those having high (16.67%) and low

(10.00%) levels of adoption with regard to recommended package of practices of coconut.

Venkatta Kumar et al. (1998) revealed that the extent of adoption of recommended coconut cultivation practices was found to be medium.

Shivalingaiah and Srikanthamurthy (2001) observed that half (50.00%) of the small farmers exhibited moderate level of adoption while 34.00 per cent and 16.00 per cent showed low and high levels of adoption respectively with respect to improved coconut cultivation practices.

Vinoth Kumar (2002) stated that majority (43.33%) of the respondents belonged to low adoption level category followed by medium (31.67%) and high (25.00%) adoption level categories with regard to adoption of recommended coconut practices.

Sivasubramanian (2003) found that among the coconut farmers 45.83 per cent had low level of adoption followed by those having medium level (33.34%) and high level (20.83%) of adoption of recommended cultivation practice of coconut.

## 2.4 RELATIONSHIP BETWEEN THE PERSONAL, SOCIO PSYCHOLOGICAL AND SITUATIONAL CHARACTERISTICS OF FARMERS AND THEIR KNOWLEDGE

### 2.4.1 Knowledge Vs Age

Samuel (1993) reported a negative and non- significant relationship between age and knowledge of trained farmers on rice production recommendations.

Prasad (1996) stated that age was not significantly related with the knowledge level of maize farmers.

Prasad (1997) mentioned that age was not significantly related with the knowledge level of respondents.

Wadea (1998) stated that age has negative relationship with knowledge of farmers

Ravichandra Prasad (2002) concluded that age of the respondents had non-significant relationship with knowledge.

### 2.4.2 Knowledge Vs Education

Anuradha (1992) reported that there was significant relationship between education and knowledge.

Krishna Mohan (1992) observed a positive and significant relationship between education and knowledge

Desiga Vinayagam (1994) found that education and knowledge were significantly related with each other.

Ravishankar (2000) inferred a positive and significant relationship between education and knowledge of the respondents.

Hemanth Kumar (2002) identified that there was a positive and significant relationship between education and knowledge of the farmers.

### 2.4.3 Knowledge Vs Farming Experience

Rao (1983) concluded that there was no significant relationship between experience in farming and knowledge of the farmers.

Narayana (1988) stated that farming experience had a negative and significant relationship with knowledge level of respondents.

Krishna Murthy (1993) reported a positive and significant relationship between farming experience and knowledge.

Reddy (1997) stated that farming experience had negative and non significant relationship with knowledge

Ravichandra Prasad (2002) inferred negative and significant relationship between farming experience and knowledge level of the rice farmers

Hemanth Kumar (2002) observed that there was no significant relationship between farming experience and knowledge of the farmers.

### 2.4.4 Knowledge Vs Farm Size

Balabhaskar (1991) reported that there was a positive and significant relationship between farm size and knowledge.

Prasad (1997) noted that farm size had positive and significant relationship with knowledge of the farmers.

Veeraiah et al. (1998) revealed that farm size was positively and significantly related with knowledge of the farmers.

Sivanandan (2002) observed a negative and significant relationship between farm size and knowledge level of the respondents.

### 2.4.5 Knowledge Vs Occupation

Ratnakar (1990) reported that there was a significant and positive relationship between occupation and knowledge of the respondents.

Reddy (1992) inferred that there was a positive and significant relationship between occupation and knowledge of the respondents.

Muneem (1997) revealed that there was a positive and significant relationship between occupation and knowledge of the respondents.

### 2.4.6 Knowledge Vs Social Participation

Biswas (1990) reported a positive and significant relationship between social participation and knowledge.

Primalam (1990) found that social participation had positive and significant relation with knowledge.

Umadevi (1992) observed that there was no significant relationship between social participation and knowledge.

Kumar (1996) stated that social participation and knowledge are positively but non- significantly related with each other.

Sivanandan (2002) inferred a positive and significant relationship between social participation and knowledge.

### 2.4.7 Knowledge Vs Extension Contact

Murthy (1990) concluded that there was a positive and significant relationship between extension contact and gain in knowledge.

Manjunath et al. (1993) revealed that extension contact was significantly correlated with knowledge level of the respondents.

Subrahmanyam (2002) indicated that there was a positive and significant relationship between extension contact and knowledge level.

### 2.4.8 Knowledge Vs Economic Motivation

Prasad (1990) identified that there was a positive and significant relationship between economic motivation and knowledge level of the farmers.

Iqbal (1991) concluded that the economic motivation had no significant influence on increase of knowledge of the beneficiaries about different components of Watershed Development Programme.

Wadea (1998) noticed a negative and non-significant relationship between economic orientation and knowledge of the farmers.

Raju (1999) inferred a positive and significant relationship between economic orientation and knowledge level of the respondents.

Rajib Kumar Chatterjee (2000) observed a positive and significant relationship between economic motivation and knowledge.

Hemanth Kumar (2002) observed a positive and significant relationship between economic orientation and knowledge of the respondents.

### 2.4.9 Knowledge Vs Scientific Orientation

Sreedevi (1992) revealed a positive and significant relationship between scientific orientation and knowledge.

Samuel (1993) reported a positive and significant relationship between scientific orientation and knowledge level of the farmers.

Rambir and Rao (1996) stated that there was a significant and positive association between scientific orientation and knowledge of the respondents.

Reddy (1998) inferred a positive and significant relationship between scientific orientation and knowledge of the respondents.

Ravishankar (2000) inferred a positive and significant relationship between scientific orientation and knowledge level of the respondents.

Hemanth Kumar (2002) identified a positive and significant relationship between scientific orientation and knowledge of the respondents.

### 2.4.10 Knowledge Vs Management Orientation

Haridasan (1995) inferred that there exists a positive and significant relationship between management orientation and knowledge level of the coconut farmers.

Venkattakumar et al. (1998) observed a positive and significant relationship between management orientation of the coconut farmers and their knowledge level about recommended practices.

Vinoth Kumar (2002) reported a positive and significant relationship between knowledge level of the coconut farmers about recommended package of practices and their management orientation.

### 2.4.11 Knowledge Vs Innovativeness

Bala Bhaskar (1991) revealed that there was a positive and significant relationship between innovativeness and knowledge level of the farmers.

Samuel (1993) observed a positive and significant correlation between innovativeness and knowledge level

Prasad (1997) noticed a positive and significant relationship between innovativeness and knowledge of the farmers.

Krishnamoorthy (1999) stated that innovativeness had a positive and significant relationship with knowledge.

Ravichandra Prasad (2002) inferred as significant relationship between innovativeness and knowledge level of the respondents.

### 2.4.12 Knowledge Vs Achievement Motivation

Primalam (1990) found that achievement motivation had positive and significant relation with knowledge

Kriahna Murthy (1993) found a positive relationship between achievement motivation and knowledge level of the respondents.

Ramakrishnan (1999) revealed that there was a positive and significant relationship between achievement motivation and knowledge gain of the farmers.

Subrahmanyam (2002) observed a positive and significant relationship between achievement motivation and knowledge of the AMC trained farmers.

Hemanth Kumar (2002) concluded a positive and significant relationship between achievement motivation and knowledge.

### 2.4.13 Knowledge Vs Mass Media Exposure

Samuel (1993) inferred that there was a positive and significant relationship between mass media participation and knowledge of the farmers.

Prasad (1996) reported a positive and significant correlation between mass media exposure and knowledge level of the farmers.

Rambir and Rao (1996) stated that mass media exposure has positive and significant relationship with knowledge level of the tobacco nursery growers.

Ravichandra Prasad (2002) observed a positive and significant association between mass media exposure and knowledge level of the respondents.

### 2.4.14 Knowledge Vs Training Undergone

Biswas (1990) inferred a positive and significant relationship between training received and knowledge of the paddy farmers

Rao (1990) reported a positive and significant relationship between training received and knowledge of the dryland groundnut farmers.

Prasad (1997) concluded that there was a positive and significant relationship between knowledge and training received by the rainfed castor farmers.

### 2.4.15 Knowledge Vs Risk Orientation

Rambir and Rao (1996) stated that risk orientation had a positive and significant relationship with knowledge of the farmers.

Prasad (1997) observed a positive and significant association between risk orientation and knowledge level of the farmers.

Wadea (1998) inferred a negative and non significant relationship between risk orientation and knowledge level of the respondents.

Hemanth Kumar (2002) concluded a positive and significant relationship between risk orientation and knowledge of the respondents.

## 2.5 RELATIONSHIP BETWEEN THE PERSONAL, SOCIO PSYCHOLOGICAL AND SITUATIONAL CHARACTERISTICS OF FARMERS AND THEIR EXTENT OF ADOPTION

### 2.5.1 Adoption Vs Age

Prakash (1991) revealed that there was a non significant relationship between age and extent of adoption among the rice and coconut farmers of Kerala.

Vilas (1993) reported that age of the respondents had non significant relationship with adoption of jowar technology.

Venugopala Rao (1996) stated that a non significant relationship existed between age and extent of adoption of critical practices of coconut.

Chanda Srivastava (1997) observed a non significant relationship between age and extent of adoption of recommended practices of multitier cropping system in coconut.

Sivasubramanian (2003) found a non significant relationship between age and adoption of cultivation practices by the coconut farmers.

### 2.5.2 Adoption Vs Education

Prakash (1991) inferred that there was a significant correlation between education and extent of fertilizer application in coconut crop.

Santha (1991) established the influence of education in the coconut growers on adoption of seedling practices of coconut.

Singha (1991) reported that there was a significant correlation between education and extent of adoption of coconut cultivation practices.

Haridasan (1995) identified a positive and significant relationship between education and resource use management among the coconut growers of Kerala.

Venugopala Rao (1996) observed that education had positive and significant influence on extent of adoption of cultivation practices by the coconut farmers.

Chanda Srivastava (1997) found that education had a positive and significant relationship with adoption of package of practices by the coconut farmers.

Hemanth Kumar (2002) stated that there existed a positive and significant relationship between education and adoption of recommended package of practices for oriental tobacco by the farmers.

Sivasubramanian (2003) revealed that there was a non significant relationship between education and extent of adoption of cultivation practices by coconut farmers.

### 2.5.3 Adoption Vs Farming Experience

Prakash (1991) revealed that there was no significant association between farming experience and the adoption of fertilizer application in coconut.

Haridasan (1995) reported that there was a positive and significant relationship between farming experience and resource utilization of the coconut farmers of Kerala state.

Venugopala Rao (1996) inferred a positive and significant relationship between farming experience of the coconut farmers and their adoption of critical practices of coconut.

Hemanth Kumar (2002) observed that there was no significant relationship between farming experience and adoption of the farmers.

Sathish Rahul (2003) concluded that there was no relationship between farming experience and adoption of risk management practices by the papaya growers.

Sivasubramanian (2003) found out a non significant relationship between farming experience and adoption of recommended coconut farming practices.

### 2.5.4. Adoption Vs Farm Size

Prakash (1991) revealed that there was no significant correlation between size of holding and adoption of fertilizer application in coconut.

Singha (1991) observed that there was no significant relationship between land holding and extent of adoption of recommended practices for coconut.

Venugopala Rao (1996) inferred that higher the farm size greater the rate of adoption of critical practices for coconut cultivation.

Chanda Srivastava (1997) reported a positive and significant relationship between adoption and farm size in the case of coconut farmers.

Reddy (1998) indicated that there was significant relationship between land holding and adoption.

Sivasubramanian (2003) reported a non-significant relationship between farm size and adoption of recommended coconut farming practices.

### 2.5.5 Adoption Vs Occupation

Reddy (1992) inferred that there was a positive and significant relationship between occupation and adoption of the respondents.

Venugopala Rao (1996) inferred that occupation had no significant relationship with adoption of critical practices of coconut by the farmers.

Muneem (1997) revealed that there was a positive and significant relationship between adoption of mango production technology and occupation of the respondents.

Chanda Srivastava (1997) reported that there was no significant relationship between occupation and adoption of recommended cultivation practices for multitier cropping in coconut.

Sivasubramanian (2003) found a non- significant relationship between occupation and adoption of recommended coconut farming practices by the farmers.

### 2.5.6 Adoption Vs Social Participation

Prasad (1993) stated that social participation had a positive and significant relationship with adoption of groundnut production technologies by the farmers.

Venugopala Rao (1996) inferred that there was a positive and significant relationship between social participation and adoption of critical practices by the coconut farmers.

Chanda Srivastava (1997) observed that there was non-significant relationship between social participation and adoption of the coconut farmers.

Reddy (1997) identified that social participation had a positive and significant relationship with extent of adoption among the farmers of diversified farming.

Hemanth Kumar (2002) revealed a positive and non-significant relationship between social participation and extent of adoption of recommended oriental tobacco practices by the respondents.

Sathish Rahul (2003) concluded that there was non-significant relationship between social participation and adoption of risk management practices by the papaya growers.

Sivasubramanian (2003) indicated a non-significant relationship between social participation and extent of adoption of recommended cultivation practices of coconut by the respondents.

### 2.5.7 Adoption Vs Extension Contact

Murthy (1990) concluded that there was a positive and significant relationship between extension contact and gain in adoption.

Haridasan (1995) revealed a positive and significant relationship between extension participation and resource utilization by the coconut farmers.

Gandhi (1996) observed a positive and significant relationship between extension agency contact and adoption behaviour of the farmers.

Prakash (1996) found a non-significant relationship between adoption and extension contact.

Venugopala Rao (1996) established a significant association between extension contact and adoption among the coconut farmers.

Chada Srivastava (1997) concluded that a significant relation existed between extension contact and adoption among the coconut farmers.

Sivasubramanian (2003) indicated that extension contact was non significant with extent of adoption of recommended cultivation practices of coconut by the farmers.

### 2.5.8 Adoption Vs Economic Motivation

Haridasan (1995) reported a positive and significant relationship between economic motivation and resource utilization of the coconut farmers of Kerala state.

Prasad (1996) revealed a non significant relationship between economic orientation and adoption of marginal farmers while a positive and significant relationship between economic orientation and adoption of small and big farmers who were growing maize.

Venugopala Rao (1996) concluded that economic motivation was positively and significantly correlated with adoption of critical practices of coconut cultivation by the coconut farmers.

Ramakrishnan (1999) observed that there was a positive and significant relationship between economic motivation and adoption of the trained farmers.

Rajib Kumar Cahtterjee (2000) identified that there was a positive and significant relationship between economic motivation and extent of adoption of the beneficiaries.

Sathish Rahul (2003) inferred that there was a positive and significant relationship between economic orientation and extent of adoption of risk management practices by the papaya growers.

Sivasubramanian (2003) found a non significant relationship between economic motivation and adoption of recommended coconut cultivation practices by the farmers.

### 2.5.9 Adoption Vs Scientific Orientation

Bhat (1994) reported a positive and significant association between scientific orientation and adoption of the paddy respondents.

Haridasan (1995) stated a positive and significant relationship between scientific orientation and resource utilization by the coconut farmers.

Anothram (1996) concluded a positive and significant relationship between scientific orientation and adoption of the farmers.

Venugopala Rao (1996) inferred a positive and significant correlation between scientific orientation and extent of adoption of critical practices for coconut.

Ravishankar (2000) observed a positive and significant relationship between scientific orientation and extent of utilization of recommended technologies by the respondents in KVKs of government organized and non government organized.

Sivasubramanian (2003) revealed that scientific orientation had a non significant relationship with extent of adoption of recommended cultivation practices by the coconut farmers.

### 2.5.10 Adoption Vs Management Orientation

Sakharkar et al. (1992) revealed that there was a positive and significant relationship between management orientation and extent of adoption.

Bhagawath Swaroop (1993) reported a positive and significant relationship between management orientation and extent of adoption.

Haridasan (1995) inferred that scientific orientation had a positive and significant association with resource utilization of the coconut farmers of Kerala state.

Venugopala Rao (1996) observed a positive and significant relationship between management orientation and adoption of critical practices for coconut cultivation by the farmers.

Rajkumar (2001) concluded that there was a positive and significant relationship between management orientation and adoption.

Sathish Rahul (2003) concluded that management orientation was positively and significantly related to extent of adoption of risk management practices by the papaya growers.

### 2.5.11 Adoption Vs Innovativeness

Samuel (1993) observed a positive and significant relationship between innovativeness and adoption of the farmers.

Haridasan (1995) inferred that innovativeness was positively and significantly correlated with resource utilization of the coconut farmers of Kerala state.

Reddy (1998) revealed that there was a positive and significant relationship between innovativeness and adoption of the farmers.

Subrahmanyam (2002) concluded that there was a positive and significant relationship between innovativeness and adoption of latest agricultural technologies by the AMC trained farmers.

Sathish Rahul (2003) reported a significant positive relationship between innovativeness and adoption of risk management practices by the papaya growers.

### 2.5.12 Adoption Vs Achievement Motivation

Bhat (1994) reported that there was negative and non significant association between achievement motivation and resource utilization of the paddy farmers.

Haridasan (1995) revealed that there existed a positive and significant relationship between achievement motivation and resource utilization of the coconut farmers of Kerala state.

Mahitha Kiran (2000) observed that there was no significant relationship between achievement motivation and decision making of the farmwomen in agriculture and allied activities.

Hemanth Kumar (2002) inferred that there was a positive and significant relationship between achievement motivation and extent of adoption of the respondents about recommended oriental tobacco practices.

Ravichandra Prasad (2002) concluded that achievement motivation and adoption were positively and significantly correlated.

### 2.5.13 Adoption Vs Mass Media Exposure

Ravisankar (1993) reported that mass media exposure was significantly correlated with extent of adoption of the sunflower growers.

Chanda Srivastava (1997) revealed that there was no significant relationship between mass media exposure and adoption of multitier cropping system in coconut garden by the farmers of Andaman and Nicobar Islands.

Chandra (2000) inferred that there was a positive and significant relationship between mass media exposure and symbolic adoption of the respondents.

Latha (2002) observed that there was a positive and significant relationship between mass media exposure and adoption.

Sathish Rahul (2003) concluded that mass media participation had significant relationship with adoption of risk management practices by the papaya growers.

Sivasubramanian (2003) stated that mass media exposure had a significant positive relationship with adoption of recommended cultivation practices by the coconut farmers.

### 2.5.14 Adoption Vs Training Undergone

Rao (1990) reported that there was no significant relationship between training received and adoption of the dryland groundnut farmers.

Prasad (1993) concluded that there was a positive and significant relationship between adoption and training received by the farmers.

Bhagawathswaroop (1993) inferred that there was no significant relationship between training received and adoption of sunflower production technology.

Chanda Srivastava (1997) reported that training undergone had no significant relationship with extent of adoption of cultivation practices by the coconut farmers.

Sivasubramanian (2003) revealed that training participation had significant relationship with adoption of coconut cultivation practices by the farmers.

### 2.5.15 Adoption Vs Risk Orientation

Chandran (1993) observed that risk orientation was significantly related with adoption of technologies.

Haridasan (1995) inferred a positive and significant relationship between risk orientation and resource utilization of the coconut farmers of Kerala state.

Raju (1999) found a non-significant relationship between risk orientation and extent of adoption of the respondents.

Hemanth Kumar (2002) stated that there was a positive and significant association between risk orientation and extent of adoption of recommended oriental tobacco practices by the farmers.

Subramaniam (2002) concluded that risk preference had positive and significant relationship with extent of adoption.

Sivasubramanian (2003) revealed that risk orientation had a non significant relationship with extent of adoption of recommended coconut cultivation practices by the farmers.

## 2.6 CONSTRAINTS EXPERIENCED BY FARMERS IN ADOPTION OF RECOMMENDED PACKAGE OF PRACTICES

The Kerala Agricultural University (1984) in its status report of the National Agricultural Research Project (NARP) reported that the immature nut fall was the major constraint in coconut production.

Markose (1989) stated that diseases of unknown etiology and unstable prices for the coconut were the two important factors inhibiting the growth and development of the crop.

Janadevan and Prakash (1993) observed that lack of annual application of fertilizers, poor economic status of coconut growers, lack of conviction about the economic feasibility of fertilizer application as compared to that of organic fertilizer and

high cost of fertilizer were the major constraints experienced by coconut growers in the adoption of recommended practices.

Ajeya Kallam (1996) in the theme paper on 'Coconut in Andhra Pradesh' at the National Conference on Coconut revealed the following factors, influencing coconut development in Andhra Pradesh as non availability of hybrid coconut seedling at reasonable rates, unorganized farming community exploitation of market by middlemen, incidence of pests and diseases, lack of processing facilities, lack of product diversification and absence of product utilization.

Babu and Mathew (1996) highlighted that average farm harvest price of coconut was subjected to pronounced seasonal fluctuations despite the production of nuts all round the year. They also concluded that crop out put of perennial trees like coconut are also known to be subjected to seasonal fluctuations even though production is round the year.

Thampan (1998) observed that lack of irrigation facilities, inadequate attention by farmers and the prevalence of devastating disease namely root wilt as the major limiting factors responsible for the poor performance of coconut in Kerala.

Resmy (2001) stated that lack of knowledge was the problem of majority of small farmers (88.30%) and big farmers (93.00%) in adoption of sustainable practices for coconut and banana. This was followed by lack of technical guidance (86.66%), lack of information sources (71.66%) and pests and diseases (70.00%) in case of small farmers,

where as by lack of information sources (80.00%), pests and diseases (72.00%) and lack of agricultural guidance (66.66%) incase of big farmers respectively.

Shivalingaiah and Srikanthamurthy (2001) concluded that inadequate irrigation was the foremost problem expressed by small farmers (100.00%) followed by lack of knowledge on pest and disease control methods (86.00%), high cost of inputs (70.00%), marketing problem (66.00%) and high wages (52.00%) in coconut cultivation.

Dhanakumar (2002) reported that the total quality management in coconut through application of the principles of quality, safety and risk management are essential for competitiveness in the case of both the small and large growers in India.

Karthikeyan et al. (2002) inferred that leaf blight disease causes serious damage in nursery plants and adult palms in Tamil Nadu.

Kumar and Singh (2002) revealed that Eriophid mite was the major constraint to coconut cultivation in India.

Singh and Ghose (2003) revealed that reasons for low coconut productivity in Andaman and Nicobar islands were attributed to the old age of the palms, close planting, utter negligence of the plantation, and lack of adequate management practices.

Sivasubramanian (2003) observed that heavy incidence of pest and diseases, wide price fluctuations heavy cost of pesticides and fertilizers, and failure of seasonal rainfall were the main constraints faced by the coconut farmers of Pondicherry.

## 2.7 CONCEPTUAL MODEL OF THE STUDY

In the light of inferences derived from recorded evidences in the literature, conceptual framework was developed for the study, which diagrammatically presents the important dimension and postulated relationships among the variables (Fig. 1).

Conceptual model is a diagrammatic representation outlining the dominant elements of a system and their interrelationships with respect to a criterion variable. It represents the researcher's understanding of a particular set of circumstances and of the simplifications, which he feels, may be made to inherently complex relationships. In the present study, in addition to experience and intuition, review of related studies was also formed as the basis for the conceptual model.

The variables included in the study were grouped in to independent and dependent variables. The independent variables are conceived as those variables which precede the others in the order of time and which theoretically are expected to lead or to be followed by certain other variables. In the present study, factors related to personal and socio psychological and situational characteristics of coconut growers were considered as independent variables. The dependent variables are those variables, which follow the independent variable in time or those being predicted from the independent variables.

Knowledge level and extent of adoption were the dependent variables considered in this study.

It is clear from the model that, knowledge and adoption are the functions of number of independent variables such as personal, socio psychological and situational factors.

This model was hopefully conceived to give an objective assessment of coconut growers in terms of their knowledge and adoption of recommended package of practices for coconut and the fifteen independent variables affecting them.

The constraints being faced by the coconut farmers were also important factors that indirectly reflect the knowledge and adoption of coconut recommended practices. But they were not included in the model for studying their relationship for obvious reasons. The relationship was diagrammatically represented in Figure 1, which helps to derive the following hypotheses for empirical testing.

## RESEARCH HYPOTHESES

Based on the objectives of the study and the theoretical framework, the following research hypotheses were formulated.

### General Hypothesis 1

There will be a significant relationship between knowledge of coconut farmers and their personal, socio psychological and situational characteristics.

**General Hypothesis 2**

There will be a significant relationship between extent of adoption of coconut farmers and their personal, socio psychological and situational characteristics.

The null and empirical hypotheses deduced from the general hypotheses with respect to independent and dependent variables under study were reported, tested and presented in the ‘RESULTS’ chapter.

# CHAPTER III

# MATERIALS AND METHODS

In this chapter, the details regarding the selection and description of the study area, sampling procedure followed, variables and their measurement adopted and the statistical tools used for analysis are narrated under the following headings.

3.1 Research design

3.2 Sampling procedure

3.3 Description of the study area

3.4 Variables and their empirical measurement

3.5 Constraints encountered and suggestions given by the respondents

3.6 Devices and methods of data collection

3.7 Statistical procedures followed

3.8 Operationalisation of the terms used in the study

## 3.1 RESEARCH DESIGN

Ex-post-facto research design was used in the investigation. Robinson (1976) defined ex-post-facto design as any systematic, empirical inquiry in which the dependent variables have not been directly manipulated because either they have already occurred or they are inherently not manipulable. He further stated that ex-post-facto studies could be devised to deduce theories, identify behavioural phenomena and

explore conditions under which a phenomenon occurs. Keeping in view of the objectives of the study, type of variables considered, size of the respondents and phenomena to be studied, the ex-post-facto research design was selected as the appropriate one.

## 3.2 SAMPLING PROCEDURE

### 3.2.1 Locale of the Study

Mahe region of the Union Territory of Pondicherry (Fig. 2) was purposively selected as the locale of study for the following reasons.

3.2.1.1 Coconut is cultivated in the U. T. of Pondicherry, which is one of the traditional tract of coconut cultivation and in Mahe region it occupies the largest area under cultivation.

3.2.1.2 So far no research study was undertaken in this area to measure the extent of adoption of recommended package of practices by coconut farmers.

3.2.1.3 Since the investigator is deputed by Government of Pondicherry for higher studies it s obligatory that the results of the study would benefit the government.

3.2.1.4 As the present study necessitated much cooperation, and the investigator being a resident and employed in that region had good acquaintance with the area and farmers, the region was selected.

### 3.2.2 Selection of Villages

All the five revenue villages of Mahe region namely, Mahe, Cheryukallayi, Chalakkara, Palloor and Pandakkal (Fig. 2) were selected for the study considering the less geographical area (9 sq. km) and less population (37,000). Details of geographical area of individual villages with number of coconut holdings are given below.

**Table.1: Village wise area and number of coconut holdings**

| SL. No. | Village | Geographical Area (Ha) | | | Number of coconut holdings |
|---|---|---|---|---|---|
| | | Ha | Are | Ca | |
| 1. | Mahe | 148 | 64 | 00 | 1003 |
| 2. | Cherukallayi | 25 | 36 | 00 | 233 |
| 3. | Chalakkara | 173 | 69 | 00 | 1150 |
| 4. | Palloor | 313 | 45 | 00 | 2126 |
| 5. | Pandakkal | 209 | 60 | 00 | 1850 |
| Total | | 870 | 74 | 00 | 6362 |

### 3.2.3 Selection of Respondents

List of coconut growers with more than 20 cents of land were obtained from the Office of the Deputy Director of Agriculture, Mahe and 150 respondents were selected by following proportionate random sampling method. This criterion of possession of 20 cents of land was followed to assure that the respondents had minimum fifteen numbers

of coconut palms so that they actually involve in farming activities. Sampling details followed is given in Fig. 3.

## 3.3 DESCRIPTION OF THE STUDY AREA

To develop a better perception of the findings and also to relate them to similar situation elsewhere, it would be necessary to know the general conditions of the study area selected. Hence the details are presented as under.

### 3.3.1 Location

The Union Territory of Pondicherry comprises of former French establishments of Pondicherry, Karaikkal, Mahe and Yanam regions, which are scattered in three states of South India namely Tamil Nadu (first two regions), Kerala and Andhra Pradesh respectively. The study area (Mahe region) is bound by the Arabian Sea in the West, Kozhikode district of Kerala in the South and Kannur District of Kerala in the North and East. The region lies in between the latitude of $11^{o}$ 42' and $11^{o}$ 43' North and longitude of 75 $^{o}$ 31' and 75 $^{o}$ 33' East.

Mahe region spreads over an area of 9 sq. km with a population of 0.37 lakhs (as per 2001 census) contributed by 19,677 women and 17,146 men (Anonymous, 2003)

### 3.3.2 Soil Type

The soil type prevailing in Mahe region is mainly Red laterite with sandy soils in the coastal region.

### 3.3.3 Climate

Average temperature in Mahe region for the last ten years ranged with the maximum temperature of 31.5 $^{0}$ c and the minimum temperature of 24.7 $^{0}$ c and the average rainfall during the same period was recorded as 3229 mm. This region receives maximum amount of rainfall during the South-West monsoon (60.00 %) followed by North- East monsoon (30.00%) and summer season (10.00%). Rainfall obtained during winter season is meager and negligible.

### 3.3.4 Irrigation Sources

Open wells are the primary sources of irrigation. The net are irrigated in this region is 45 ha which amounts to only 7.38 per cent of the gross area sown.

### 3.3.5 Crops Grown

As an exception from other regions of the Union Territory of Pondicherry, this region has separate cropping pattern and cropping systems. Perennial plantation crops like Coconut, Arecanut; tree spices like Nutmeg, Clove, and Cinnamon; the climbing spice Pepper; annual spices like Ginger and Turmeric; fruit crops like Jack, Mango and annuals like Banana, Tapioca, Pineapple and seasonal vegetables are the important crops cultivated in this region. Among these, coconut forms the first and foremost crop with all others cultivated as intercrops in a multitiered system. Vegetables are cultivated in the backyards as kitchen garden as well as in earthen pots in the courtyards and terraces. Areas under different crops are given in Table 2 below.

**Table. 2: Areas under different crops in the region**

| SL. No | Crop | Area in ha |
|---|---|---|
| 1. | Coconut | 545 |
| 2. | Arecanut | 25 |
| 3. | Pepper | 20 |
| 4. | Banana | 10 |
| 5. | Tapioca | 5 |
| 6. | Miscellaneous tree crops (fruits etc.) | 20 |
| 7. | Spices (trees and annuals) and other annuals (vegetables) | 10 |
| Total | | 635 |

(Source: Anonymous 2003)

### 3.3.6 Classification of Area on the Basis of Land Use Pattern

**Table.3: Classification of area on the basis of land use pattern**

| SL. No. | Classification | Area in ha | | |
|---|---|---|---|---|
| | | Ha | Are | Ca |
| 1 | Total area | 870 | 74 | 00 |
| 2 | Land put to non- agricultural use | 204 | 74 | 00 |
| 3 | Barren and uncultivable land | 1 | 00 | 00 |
| 4 | Permanent pastures and grazing lands | 0 | 00 | 00 |
| 5 | Land under miscellaneous tree crops and groves not included in net area sown | 2 | 00 | 00 |
| 6 | Cultivable waste | 14 | 00 | 00 |
| 7 | Other fallow lands | 13 | 00 | 00 |
| 8 | Current fallow | 1 | 00 | 00 |
| 9 | Net area sown | 635 | 00 | 00 |
| 10 | Area sown more than once | 3 | 00 | 00 |
| 11 | Total cropped area | 638 | 00 | 00 |

(Source: Anonymous 2003)

## 3.4 VARIABLES AND THEIR EMPIRICAL MEASUREMENT

The variables for the study have been selected on the basis of extensive review of literature on the subject, consulting experts and previous studies that dwelled on topics akin to present probing. Only the variables having most relevance to the present investigation were selected. The list of variables and their empirical measurement are given below.

**Table. 4: Variables and their empirical measurement**

| SL. No. | Variables | Empirical Measurement |
|---|---|---|
| **A** | **Dependent Variables** | |
| 1 | Knowledge Level | Knowledge Test developed for the study. |
| 2 | Extent of Adoption | Adoption Index developed for the study |
| **B** | **Independent Variables** | |
| 1 | Age | Chronological age of the respondents |
| 2 | Education | Schedule developed for the study |
| 3 | Farming Experience | Schedule developed for the study |
| 4 | Farm Size | Land possessed by the respondents at the time of enquiry |
| 5 | Occupation | Schedule developed for the study |
| 6 | Social Participation | Schedule developed for the study |
| 7 | Extension Contact | Schedule developed for the study |
| 8 | Economic Motivation | Scale developed by Parani Kumar(1999) with suitable modifications |
| 9 | Scientific Orientation | Scale developed by Shanmugharaja(1998) with suitable modifications |
| 10 | Management Orientation | Scale developed by Samantha (1977) with suitable modifications |
| 11 | Innovativeness | Scale developed by Syam kumar(1999) with suitable modifications |

| | | |
|---|---|---|
| 12 | Achievement Motivation | Scale developed by Jhansi Rani(1985) with suitable modifications |
| 13 | Mass Media Exposure | Schedule developed for the study |
| 14 | Training undergone | Schedule developed for the study |
| 15 | Risk orientation | Scale developed by Supe (1969) with suitable modifications |

### 3.4.1 Dependent Variables

#### *3.4.1.1 Knowledge ($Y_1$)*

Knowledge includes all those behavior and test situations, which emphasize remembering either by recognition or by recall of ideas and materials on some phenomena.

The main objective of the study was to find out the knowledge level of coconut farmers about the recommended practices of coconut

**Construction and Standardization of Knowledge Test**

The main intention of the knowledge test was to identify the extent of knowledge of coconut farmers about recommended practices. The details of the standardization of the items are as follows.

**A. Collection of Knowledge Items**

The content of the test was composed of items asked in the form of questions. The important factor considered for collecting the items for knowledge test was to determine and classify the object to be measured by taking care of the respondents' abilities. Items were collected from different sources like printed literature like

'Package of Practices –Recommendations: Crops' of Kerala Agricultural University, previous theses, scientists of Central Plantation Crops Research Institute, Kazargod; officials of Coconut Development Board, Kochi; officials of U.T./ State Agriculture Department of Pondicherry and Kerala; staff of Department of Extension Education of S.V. Agricultural College, Tirupati and progressive farmers of Mahe region.

**Selection of Items for Item Analysis**

The criteria used for selection of items were,

i. Response to items should promote thinking rather than rote memorization.
ii. They should differentiate the well-informed respondents from the less informed and should have certain difficulty value.
iii. The items included should cover all areas of knowledge about recommended package of practices of coconut.

By respecting above criteria, 48 items were selected for developing knowledge test after editing carefully. The items were then framed in to objective form questions and in this form, the answers were completely controlled by having true/ false, multiple choice and fill up the blanks and therefore the assessment was objective and impersonal (Appendix II).

**B. Item Analysis**

The item analysis was carried out to yield two kinds of information viz., indices of 'Item Difficulty' and 'Item Discrimination'. The index of item difficulty indicates the extent to which an item was difficult. The latter provides information on how well

an item measures or discriminates a well informed respondent from poorly informed respondent.

Pre testing of the items was done as suggested by Gonard (1948) by administering the questions to 30 coconut farmers in non- sample area i.e. Pondicherry. All the 48 items were administered to each one of the 30 respondents. The scores allotted were '1' for correct response and '0' for incorrect response. After computing the total scores obtained by each of the 30 respondents on 48 items, they were arranged in the descending order. Then the respondents were divided into six equal groups of five members each and were labeled as G1, G2, G3, G4, G5 and G6. For the purpose of item analysis, the middle two groups G3 and G4 were eliminated keeping only four extreme groups with high and low scores.

**C. Selection of the Items for the Final Test**

Then selection of the items for final knowledge test was done based on the following criteria.

**Item Difficulty Index (P)**

The item difficulty index was worked out as the percentage of the respondents answering an item correctly. The assumption of the item statistic of difficulty index was that, the difficulty is linearly related to the level of respondent's knowledge about recommended package of practices of coconut. The items with 'p' values ranging from 20 to 80 were considered for the final selection of the knowledge test battery.

**Discrimination Index (E 1/3)**

The item discrimination index (E 1/3), which indicates the level of discrimination between well informed and poorly informed respondents, was computed using the formula given below.

$$E\ 1/3 = \frac{(S1 + S2) - (S5 + S6)}{N/3}$$

Where,

S1, S2, S5, S6: Frequencies of correct answers in the groups G1, G2, G5 and G6

. N: Total number of respondents of the sample selected for the item analysis i.e. 30

Value of discrimination index ranges from 0 to 1. The items with discrimination index ranging form 0.20 to 0.80 were selected for the final test.

**Point Biserial Correlation ($r_{pbis}$)**

The main aim of calculating point biserial correlation was to work out the internal consistency of the items i.e., the relationship of the total score to a dichotomized answer to any given item. In a way, the validity power of the item was computed by the correlation of the individual item of preliminary knowledge test calculated by using the formula suggested by Garret (1966).

$$r_{pbis} = \frac{MP - MQ}{SD} \times \sqrt{PQ}$$

Where,

$R_{phis}$ = Point biserial correlation

MP = Mean of the total scores of the respondents who answered the item correctly

(or)

$$MP = \frac{\text{Sum of total of xy}}{\text{Total number of correct answers}}$$

MQ = Mean of the total scores of the respondents who answered the item incorrectly

(or)

$$MQ = \frac{\text{Sum total of x} - \text{Sum total of xy}}{\text{Total number of wrong answers}}$$

SD = Standard deviation of the entire sample (30 nos.)

P = Proportion of the respondents giving correct answer to the item

(or)

$$P = \frac{\text{Total number of correct answers}}{\text{Total number of respondents}}$$

Q = Proportion of the respondents giving incorrect answer to the item

(or)

$Q = 1 - P$

X = Total score of the respondent for all items

Y = Response of the individual for the specific items

(Correct = 1, Incorrect = 0)

Items having significant point biserial correlation either at 1 per cent (or) 5 per cent level were selected for the final test of the knowledge.

**Total Items Selected**

Out of 48 items 34 items were finally selected based on the following criteria.

1. Items with difficulty level indices ranging from 20 to 80
2. Items with discrimination indices ranging from 0.20 to 0.80.
3. Items having significant point biserial correlation either at 1 per cent or 5 per cent level.
4. Items which were not satisfying the above criteria but could not be eliminated being related to important package of practice

The finally selected knowledge test items comprised of three types of questions viz., true or false (9 nos.), multiple choice (11 nos.) and fill in the blanks (14 nos.) totaling to 34 items of test battery on knowledge of recommended package of practices of coconut.

**D. Reliability Test**

Reliability of the items was tested by split half method. The scores obtained by odd numbers of respondents were taken as one set of values and the scores of even numbers of respondents as the second set of values for calculating the correlation coefficient. The correlation co-efficient ($r = 0.75$) was highly significant indicating a high degree of dependability of the instrument for measuring knowledge of the farmers.

**E. Validity of the Scale**

The content validity of the knowledge test was derived from a long list of test items representing the whole universe of recommended package of practices of coconut

collected from various sources as discussed earlier and includes materials from literature, experts opinion, findings of past work and discussions with extension workers, officials of the Department of Agriculture and progressive farmers. It was assumed that the score obtained by administering the knowledge test of this study, measures what was intended to measure. Thus, the knowledge test developed in the present study measures the knowledge about recommended practices of coconut farmers as it showed a greater degree of reliability and validity.

**F. Scoring Pattern**

The selected knowledge test items included three types as true or false, multiple choice and fill up the blanks. The correct response to each test item was given a score of '1' and incorrect response a score of '0' that the knowledge score of a respondent is the summation of scores of correctly answered items out of total test items. The possible knowledge score ranged from 0 to 34.

**G. Administration of the Test**

Each item in the knowledge test was read out to the respondents in translated version (Malayalam) by the investigator and the responses in the form of correct or incorrect answers were recorded.

**H. Categorization**

Based on the knowledge scores obtained, the farmers were grouped in to three categories by using mean and standard deviation as given below.

| SL. No. | Category | Criterion |
|---|---|---|
| 1. | Low level of Knowledge | Below Mean – ½ S.D. |
| 2. | Medium level of Knowledge | Between Mean ± ½ S.D. |
| 3. | High level of Knowledge | Above Mean + ½ S.D. |

### *3.4.1.2 Extent of Adoption ($Y_2$)*

Adoption is the decision, and implementation of the decision to use the recommended package of practices in the field. To measure the extent of adoption, thirty five recommended package of practices were selected to prepare the schedule by referring the 'Package of Practices, Recommendations: Crops' published by the Kerala Agricultural University and in consultation with the experts and staff of Central Plantation Crops Research Institute, Kazargod; Coconut Development Board, Kochi; U.T./ State Agriculture Department, Pondicherry and Kerala; S.V. Agricultural College, Tirupati and farmers of Mahe region.

All the thirty five recommended package of practices included in the schedule were administered to the coconut farmers after pre-testing. The responses were obtained from the farmers as 'Adopted' or 'Not Adopted' assigning a weightage of '1' and '0' respectively. Thus the minimum and maximum possible scores of a respondent could be 0 and 35. Adoption Index for each farmer was then computed using the formula given below.

Adoption Index = $\frac{\text{Total score obtained by the farmer}}{\text{Maximum possible score}} \times 100$

Based on the adoption index obtained, farmers were then grouped into three categories as shown below using mean and standard deviation.

| SL.No. | Category | Criterion |
|---|---|---|
| 1 | Low Adoption | Below Mean- ½ S.D. |
| 2 | Medium Adoption | Between Mean $\pm$ ½ S.D. |
| 3 | High Adoption | Above Mean + ½ S.D |

### 3.4.2 Independent Variables

#### *3.4.2.1 Age ($X_1$)*

Age of the coconut farmer was measured as the number of completed years as reported by the respondent. A score of one was given for every completed year. Based on age, they were grouped into three categories as follows

1. Young age : Up to 35 years
2. Middle age : 36 to 55 years
3. Old age : 56 years and above

#### *3.4.2.2 Education ($X_2$)*

Education was measured based on a schedule developed for the study. The educational status of coconut farmers was noted against the category composed of the following.

| **Category** | **Score** |
|---|---|
| Illiterate | 0 |
| Can read and write only | 1 |
| Primary school | 2 |
| Middle school | 3 |
| High school | 4 |
| Higher secondary school | 5 |
| Collegiate education | 6 |

#### *3.4.2.3 Farming Experience*

Farming experience of the coconut farmers was measured as the number of years of involvement in farming. A schedule was developed for measuring this in which a weightage of one was given for every three years completed in farming as shown below.

| **Farming Involvement in Years** | **Score** |
|---|---|
| 1 to 3 years | 1 |
| 3 to 6 years | 2 |
| 6 to 9 years | 3 |
| 9 to 12 years | 4 |
| 12 to 15 years | 5 |

| | |
|---|---|
| 15 to 18 years | 6 |
| 18 to 21 years | 7 |
| More than 21 years | 8 |

The respondents were classified into the following three categories based on their scores using mean and standard deviation.

| SL.No | Category | Criterion |
|---|---|---|
| 1 | Low Farming Experience | Below Mean- ½ S.D |
| 2 | Medium Farming Experience | Between Mean $\pm$ ½ S.D. |
| 3 | High Farming Experience | Above Mean + ½ S.D. |

### *3.4.2.4 Farm Size ($X_4$)*

The total land possessed by the respondent at the time of enquiry was converted into standard acres and they were categorized as below based on the classification of land followed by Government of Pondicherry with the norm that one acre of wetland is equal to 2.5 acres of dryland.

| SL. No | Category | Area of land | Score |
|---|---|---|---|
| 1 | Marginal Farmers | Below 2.5 acres of dryland | 1 |
| 2 | Small Farmers | 2.5 to 5 acres of dryland | 2 |
| 3 | Big Farmers | Above 5 acres of dryland | 3 |

### *3.4.2.5 Occupation ($X_5$)*

Occupation of the coconut farmers was measured using a schedule developed for the study, which contained the following categories and scoring procedure.

| SL.No. | Category | Score |
|---|---|---|
| 1 | Farming alone | 1 |
| 2 | Farming +Labour | 2 |
| 3 | Farming +Business | 3 |
| 4 | Farming + Independent profession | 4 |
| 5 | Farming + Service (Government/ Private) | 5 |

### *3.4.2.6 Social Participation ($X_7$)*

Social participation of the subjects was measured using a schedule developed for the study, which contained two categories namely 'Membership in organizations' and 'Frequency of attending the meetings.' The scoring procedure adopted was as follows in which the individuals were scored for both the categories and these scores were then added to get the total score obtained by the individual. The minimum and maximum scores possible in this scale ranged from 0 to 11.

| SL. No. | Statements | Score |
|---|---|---|
| **A. Membership** | | |
| 1 | No membership in any organization in the past and at present | 0 |
| 2 | Membership in one organization in the past | 1 |

| | | |
|---|---|---|
| 3 | Office bearer in one organization in the past | 2 |
| 4 | Membership in more than one organization in the past | 3 |
| 5 | Office bearer in more than one organization in the past | 4 |
| 6 | Membership in one organization at present | 5 |
| 7 | Office bearer in one organization at present | 6 |
| 8 | Membership in more than one organization at present | 7 |
| 9 | Office bearer in more than one organization at present | 8 |
| **B. Attendance** | | |
| 1 | Never attend meetings | 0 |
| 2 | Attend meetings occasionally | 1 |
| 3 | Attend meetings very often | 2 |
| 4 | Attend meetings regularly | 3 |

Farmers were then classified into three categories as shown below using mean and standard deviation.

| SL.No | Category | Criterion |
|---|---|---|
| 1 | Low Social Participation | Below Mean – ½ S.D |
| 2 | Medium Social Participation | Between Mean $\pm$ ½ S.D |
| 3 | High Social Participation | Above Mean + ½ S.D |

### *3.4.2.7 Extension Contact ($X_7$)*

The degree of extension contact of the respondents was measured with the help of a schedule developed for the study. The schedule contained two categories namely 'Awareness' and 'Frequency of contact'. The individuals were scored for both the categories and the total score for each was arrived at by adding the scores for both.

Scoring procedure adopted was as follows. The possible minimum and maximum scores were 0 and 50.

| SL. No. | Designation | Awareness | | Frequency of Contact | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Aware 1 | Not Aware 0 | Weekly Once 4 | Once in Fortnight 3 | Monthly once 2 | Rarely 1 | Never 0 |
| 1 | Demonstration Assistant | | | | | | | |
| 2 | VEW | | | | | | | |
| 3 | AAO | | | | | | | |
| 4 | AO | | | | | | | |
| 5 | DDA | | | | | | | |
| 6 | JDA | | | | | | | |
| 7 | Scientists | | | | | | | |
| 8 | NGO | | | | | | | |
| 9 | Input Agencies | | | | | | | |
| 10 | Any Others | | | | | | | |

Based on the total scores secured by the respondents they were classified into three categories as given below using mean and standard deviation.

| SL.No | Category | Criterion |
|---|---|---|
| 1 | Low Extension Contact | Below Mean – ½ S.D |
| 2 | Medium Extension Contact | Between Mean $\pm$ ½ S.D |
| 3 | High Extension Contact | Above Mean + ½ S.D |

### *3.4.2.8 Economic Motivation ($X_8$)*

Economic Motivation was measured with the help of the scale developed by Parani Kumar (1999) with required modifications. The scale consisted six statements of which first five were positive and the last one was negative. The score given for each statement was as follows on a five-point continuum.

| **Statement** | **Response** | | | | |
|---|---|---|---|---|---|
| | **Strongly Agree** | **Agree** | **Undecided** | **Disagree** | **Strongly Disagree** |
| Positive | 7 | 5 | 4 | 3 | 1 |
| Negative | 1 | 3 | 4 | 5 | 7 |

The minimum score an individual could get on this scale was 6 with the maximum score being 42. The scores secured by an individual for all the statements were added to arrive at the total score bagged by the individual. They were then classified into three categories based on the total scores using mean and standard deviation as shown below.

| **SL.No.** | **Category** | **Criterion** |
|---|---|---|
| 1 | Low Economic Motivation | Below Mean – ½ S.D |
| 2 | Medium Economic Motivation | Between Mean $\pm$ ½ S.D |
| 3 | High Economic Motivation | Above Mean + ½ S.D |

### *3.4.2.9 Scientific Orientation ($X_9$)*

Measurement of scientific orientation of the alternatives was done with the help of the scale developed by Shanmugharaja (1998) with required modifications. The scale

consisted six statements of which the second alone was negative and all others were positive. The scoring was given on a five point continuum as shown below.

| **Statements** | **Response** | | | | |
|---|---|---|---|---|---|
| | **Strongly Agree** | **Agree** | **Undecided** | **Disagree** | **Strongly Disagree** |
| Positive | 7 | 5 | 4 | 3 | 1 |
| Negative | 1 | 3 | 4 | 5 | 7 |

The minimum and maximum possible scores of the scale were 6 and 42. The scores for all the statements were added together to get the total score of an individual respondent and all the respondents were classified into three categories as shown below using mean and standard deviation.

| **SL. No.** | **Category** | **Criterion** |
|---|---|---|
| 1 | Low Scientific Orientation | Below Mean- ½ S.D |
| 2 | Medium Scientific Orientation | Between Mean $\pm$ ½ S.D |
| 3 | High Scientific Orientation | Above Mean + ½ S.D |

### *3.4.2.10 Management Orientation ($X_{10}$)*

The scale developed by Samantha (1977) was used with suitable modifications to measure the management orientation of coconut farmers. The scale consisted three sets of statements, under 'Planning Orientation', 'Production Orientation' and 'Marketing Orientation'.

Planning orientation had six statements of which three were positive and three were negative. Similarly production orientation had five positive and one negative statement while marketing orientation had statements similar to planning orientation.

Scoring was done on a three-point continuum as shown below in which the minimum and maximum possible scores were 18 and 54 respectively.

| **Statement** | **Response** | | |
|---|---|---|---|
| | **Agree** | **Undecided** | **Disagree** |
| Positive | 3 | 2 | 1 |
| Negative | 1 | 2 | 3 |

Scores obtained for all the statements were summed up to get the individual respondent's management orientation score. Based on this score the respondents were then classified into three categories using mean and standard deviation.

| **SL.No.** | **Category** | **Criterion** |
|---|---|---|
| 1 | Low Management Orientation | Below Mean – ½ S.D |
| 2 | Medium Management Orientation | Between Mean $\pm$ ½ S.D |
| 3 | High Management Orientation | Above Mean + ½ S.D |

### *3.4.2.11 Innovativeness ($X_{11}$)*

Innovativeness of the subjects was measured using the scale developed by Syam Kumar (1999) after making suitable modifications. The scale consisted eight statements

of which four were positive and four were negative. The statements were rated on a three-point continuum as shown below.

| Statement | Response | | |
|---|---|---|---|
| | Yes | Undecided | No |
| Positive | 2 | 1 | 0 |
| Negative | 0 | 1 | 2 |

Here the minimum and maximum possible scores were 0 and 16 respectively. Scores secured by an individual for all the statements were summed up to get his total score. Based on this total score the respondents were categorized as shown below using mean and standard deviation.

| SL. No | Category | Criterion |
|---|---|---|
| 1 | Low Innovativeness | Below Mean – ½ S.D |
| 2 | Medium Innovativeness | Between Mean $\pm$ ½ S.D |
| 3 | High Innovativeness | Above Mean + ½ S.D |

### *3.4.2.12 Achievement Motivation ($X_{12}$)*

The scale developed by Jhansi Rani (1985) after making required modifications was used for measuring the degree of achievement motivation of the coconut farmers. The scale consisted eight statements out of which six where positive while two were negative. Scores were allotted to these statements on a five point continuum as given below.

| Statement | Response | | | | |
|---|---|---|---|---|---|
| | **Strongly Agree** | **Agree** | **Undecided** | **Disagree** | **Strongly Disagree** |
| Positive | 5 | 4 | 3 | 2 | 1 |
| Negative | 1 | 2 | 3 | 4 | 5 |

As per the scoring the minimum and maximum score that could be secured were 8 and 40. Total score of an individual respondent was arrived at by summing up the scores for all the statements. Based on the total scores of the respondents, they were categorized as follows using mean and standard deviation.

| SL.No. | Category | Criterion |
|---|---|---|
| 1 | Low Achievement Motivation | Below Mean – ½ S.D |
| 2 | Medium Achievement Motivation | Between Mean $\pm$ ½ S.D |
| 3 | High Achievement Motivation | Above Mean + ½ S.D |

### *3.4.2.13 Mass Media Exposure ($X_{13}$)*

The level of exposure of coconut farmers to mass media was measured with help of a schedule developed for the study. The schedule contained eight statements of which the first three were regarding the possession or subscription to newspaper farm magazines T.V., Radio, etc. The remaining five statements were on frequency of listening to or reading as the case may be. The scoring procedure adopted was as follows.

| Statement | Response | |
|---|---|---|
| | **Yes** | **No** |
| Possession/ Subscription | 1 for each item | 0 |

| Statement | Response | | | |
|---|---|---|---|---|
| | **Regular** | **Very Often** | **Occasional** | **Never** |
| Listening to/Reading | 3 | 2 | 1 | 0 |

Scores for all the eight statements were summed up to get the total score secured by and individual respondent. Here the minimum and maximum possible scores were 0 and 19. Based on the total scores secured, the respondents were then classified into three categories as shown below using mean and standard deviation.

| SL.No | Category | Criterion |
|---|---|---|
| 1 | Low Mass Media Exposure | Below Mean – ½ S.D |
| 2 | Medium Mass Media Exposure | Between Mean $\pm$ ½ S.D |
| 3 | High Mass Media Exposure | Above Mean + ½ S.D |

### *3.4.2.14 Training Undergone ($X_{14}$)*

Training undergone was measured as the actual number of trainings attended by the respondents at the time of enquiry and duration of each training undergone with the help of a schedule developed or the study. The scoring procedure adopted was as follows.

| SL.No. | Particulars | Score |
|---|---|---|
| **A. Number of Trainings** | | |
| 1 | No trainings undergone | 0 |
| 2 | One training | 1 |
| 3 | Two trainings | 2 |
| 4 | Three trainings | 3 |
| 5 | Four trainings | 4 |
| 6 | Five or more trainings | 5 |
| **B. Duration of Training** | | |
| 1 | One to three days | 1 |
| 2 | Four to seven days | 2 |
| 3 | Eight to fifteen days | 3 |
| 4 | More than fifteen days | 4 |

Scores for both the number of trainings attended and the duration of training were summed up to get the total score for an individual respondent. The minimum and maximum scores possible were 0 and 25. Based on the total scores obtained by the respondents they were classified into three categories as follows using mean and standard deviation.

| SL.No | Category | Criterion |
|---|---|---|
| 1 | Low level of Training Undergone | Below Mean – ½ S.D |
| 2 | Medium level of Training Undergone | Between Mean $\pm$ ½ S.D |
| 3 | High level of Training Undergone | Above Mean + ½ S.D |

### *3.4.2.15 Risk Orientation ($X_{15}$)*

With the help of the scale developed by Supe (1969) after required modifications, the degree of risk orientation of coconut farmers was measured for the study purpose. The scale consisted six statements of which five were positive and one was negative. The statements were scored on a three- point continuum as shown below.

| Statement | Response | | |
|---|---|---|---|
| | **Agree** | **Undecided** | **Disagree** |
| Positive | 2 | 1 | 0 |
| Negative | 0 | 1 | 2 |

In this scale the minimum and maximum possible scores were 0 and 12. Scores for all the statements secured by the respondents were summed up to get his total score. Based on the total scores the respondents were classified into three categories as shown below.

| SL.No. | Category | Criterion |
|---|---|---|
| 1 | Low Risk Orientation | Below Mean – ½ S.D |
| 2 | Medium Risk Orientation | Between Mean± ½ S.D |
| 3 | High Risk Orientation | Above Mean + ½ S.D |

## 3.5 CONSTRAINTS ENCOUNTERED AND SUGGESTIONS GIVEN BY THE RESPONDENTS

### 3.5.1 Constraints Encountered by the Respondents in Adoption of Recommended Package of Practices

The coconut farmers were asked to identify the constraints encountered by them in the adoption of recommended package of practices as 'More constraint' or 'Less constraint' from a set of constraints categorized in groups according to package of practices. The constraints mentioned by most of the respondents –total of farmers rating an item as 'more constraint' and 'less constraint'-would become the first constraint and the rest followed in the order of magnitude. Items mentioned by a minimum of twenty percent of the respondents were considered as constraints faced by the farmers in the adoption of recommended practices.

### 3.5.2 Suggestions Given by the Respondents to Overcome the Constraints

The respondents were asked to give their suggestions to overcome the constraints faced by them. Suggestions given by maximum number of respondents would become the first suggestion and the rest were followed in the order of magnitude. Items mentioned by a minimum of twenty percent of the respondents were considered as suggestions.

## 3.6 DEVICES AND METHODS OF DATA COLLECTION

### 3.6.1 Devices Used for Data Collection

An interview schedule was developed and used for data collection in this investigation. Most of the items included in the schedule were structured questions, scales and objective test items, which were suitable to each category of respondents. The interview schedule was pre tested and necessary modifications were carried out. The investigator had to translate the contents of the schedule into the local language (Malayalam), so as to make the respondents to understand the questions properly and

furnish reliable responses. Information required for schedule development were collected by going through the relevant literature on the subject, detailed discussions with experts and considering the various aspects of the problem under the study. Interview schedule is furnished in Appendix-IV, which consists of Section-A containing personal, socio-psychological and situational variables; Section-B including knowledge and adoption aspects and Section- C enlisting the constraints encountered by the farmers in adoption of recommended package of practices of coconut and the suggestions given by them to overcome the constraints.

### 3.6.2 Pre testing

Before giving a final shape, the interview schedule was pre-tested in an identical village situation and necessary modifications in the layout, question structure and their sequence were made.

### 3.6.3 Establishing Rapport

The investigator, having worked in the region as Agricultural Officer for more than eleven years had already established good rapport with the respondents and this helped a great deal in conducting the field investigation and also clearing out apprehension from the minds of the respondents.

### 3.6.4 Method of Data Collection

The investigator interviewed all the selected respondents at their residence or in the field and the data were recorded directly on the schedule. Friendly atmosphere was

maintained during the interview to see that the respondents were at ease and expressed their opinion freely, fairly and frankly.

### 3.6.5 Data Analysis Procedure

The data collected from all the respondents were coded and tabulated. Then the data were subjected to different statistical measures keeping in view the objectives of the study. The findings emerged out of the data analysis were interpreted, discussed and necessary inferences and conclusions were drawn.

## 3.7 STATISTICAL PROCEDURES

The following statistical tests and measures were used for analyzing the data.

### 3.7.1 Arithmetic Mean

This was used to compare the respondents in respect of their dependent variable. The arithmetic mean is the sum of scores divided by the number of respondents.

$$\bar{x} = \frac{\Sigma x}{n}$$

Where,

$\bar{x}$ = Mean

$\Sigma x$ = Sum of scores

n = Number of respondents

### 3.7.2 Standard Deviation

Standard deviation is the square root of the mean of the sum of squares of the deviation taken from the mean of the distribution.

$$\sigma = \sqrt{\frac{1}{n}\left(\sum x^2 - \frac{(\sum x^2)}{n}\right)}$$

Where $\sigma$ = Standard deviation

$\Sigma X^2$ = Sum of squared deviations from the mean

n = Number of items

### 3.7.3 Frequencies and Percentages

These were used to know the distribution pattern of respondents with respect to different variables selected.

### 3.7.4 Correlation Co-efficient (r)

This tool was used to find out the relationship, if any between scores of the independent variables and the scores of the dependent variables of the sample respondents who are cultivating coconut. The formula is as follows:

$$r = \frac{\sum xy - \frac{(\sum x)(\sum y)}{n}}{\sqrt{\sum x^2 - \frac{(\sum x)^2}{n}}\ \sqrt{\sum y^2 - \frac{(\sum y)^2}{n}}}$$

Where

r = Co-efficient of correlation between x and y

$\sum x$ = Sum of independent variable x

$\sum y$ = Sum of dependent variable y

$\sum x^2$ = Sum of squares of x variable

$\sum y^2$ = Sum of squares of y variable

n = Size of the sample

The computed 'r' values were then compared with the table values and correlation at 1 and 5 per cent levels of significance was tested.

### 3.7.5 Regression Analysis

To find out the contribution of various independent variables on dependent variable regression analysis was done. In other words, the influence of various independent variables on the dependent variable was obtained by regression analysis.

***A. Multiple Linear Regression Analysis***

Multiple linear regression provides an analysis of the relations among two or more predictor variables and the single criterion variable Y. The regression coefficient $b_x$ may be interpreted as the change in Y corresponding to a unit increase in $x_1$ when all the other variables are held constant. The multiple linear regression coefficient 'R' is the highest possible correlation between least squares of the independent variables and the observed dependent variable and $R^2$ is the portion of the variance in the criterion variable.

The regression equation may be written as

$Y = a + b_1 x_1 + b_2 x_2 + b_3 x_3 \ldots\ldots\ldots b_k x_k$

Where a = intercept

$b_1$ = The partial regression coefficient represents the amount of change in Y that can be associated with a unit change in $x_1$ the remaining independent variables held constant

xi = i th independent variable for i = 1,2, … K

***B. Programme Organization***

The programme was organized to calculate the mean and standard deviations of the variables and work out the correlation matrix. The partial regression coefficient (bx), SE of b, 't' value of b, multiple regression (R) and coefficient of determination ($R^2$) were worked out for each variable. In the next step it deleted the variable, which had the least computed t– value.

Thus the predictive power of each of the multiple regression equations was evaluated with the help of multiple correlation co-efficient (R) and the square of the multiple regression coefficient ($R^2$). The multiple regression coefficient (R) represents zero order correlation between the actual dependent variable (r) score and the predicted variable score from the independent variable under consideration. If the predicted variable for each respondent would correspond exactly to his actual dependent variable score obtained in the study, then the multiple regression would be unity or '1'. The significance of each of the partial regression coefficients in multiple regression equation was determined by student's t-test.

$$t = \frac{b}{\text{SE of (b)}}$$

Where

b = Partial regression coefficient

SE of (b) = Standard error of the partial regression coefficient

## 3.8 OPERATIONALIZATION OF THE TERMS USED IN THE STUDY

### 3.8.1 Knowledge:

It refers to the recall of recommended package of practices of coconut by the respondents.

### 3.8.2 Adoption:

It refers to the actual use of recommended package of practices of coconut by the respondents.

### 3.8.3 Age:

It refers to the number of completed years of age as reported by the respondent.

### 3.8.4 Education:

It refers to the extent of formal education successfully attained by the respondent.

### 3.8.5 Farming Experience:

It refers to the actual number of years of experience the respondent had in farming.

### 3.8.6 Farm Size:

It refers to the number of acres of land possessed by the respondent at the time of investigation.

### 3.8.7 Occupation:

It refers to the profession in which an individual spend much of his time and money as a means of livelihood to maintain himself and his family.

### 3.8.8 Social Participation:

It refers to the degree to which the respondent is involved in formal, social and political organizations as member or office bearer or their involvement in community.

### 3.8.9 Extension Contact:

It refers to the degree to which the respondent had maintained contact with the personnel of different organizations like extension agencies, NGO etc. to get the information on farming.

### 3.8.10 Economic Motivation:

It refers to the occupational success of coconut farmers in terms of profit maximization for economic ends.

### 3.8.11 Scientific Orientation:

It refers to the degree to which the farmer was oriented to the use of scientific methods of farming and decision-making.

### 3.8.12 Management Orientation:

It refers to the degree to which a farmer was oriented towards the scientific farm management in terms of planning, production and marketing in crop cultivation.

### 3.8.13 Innovativeness:

It refers to the degree of relative earliness with which a respondent used a new/-improved technology in a social system.

### 3.8.14 Achievement motivation:

It refers to the need to achieve a task and try to excel others in adoption of recommended package of practices.

### 3.8.15 Mass Media Exposure:

It refers to the utilization of or exposure to different mass media sources by the respondent.

### 3.8.16 Training undergone:

It refers to the number and duration of trainings undergone by the subject on the recommended package of practices.

### 3.8.17 Risk Orientation:

It refers to the degree to which the respondent was oriented towards risk, uncertainty and has the courage to face the problems in farming.

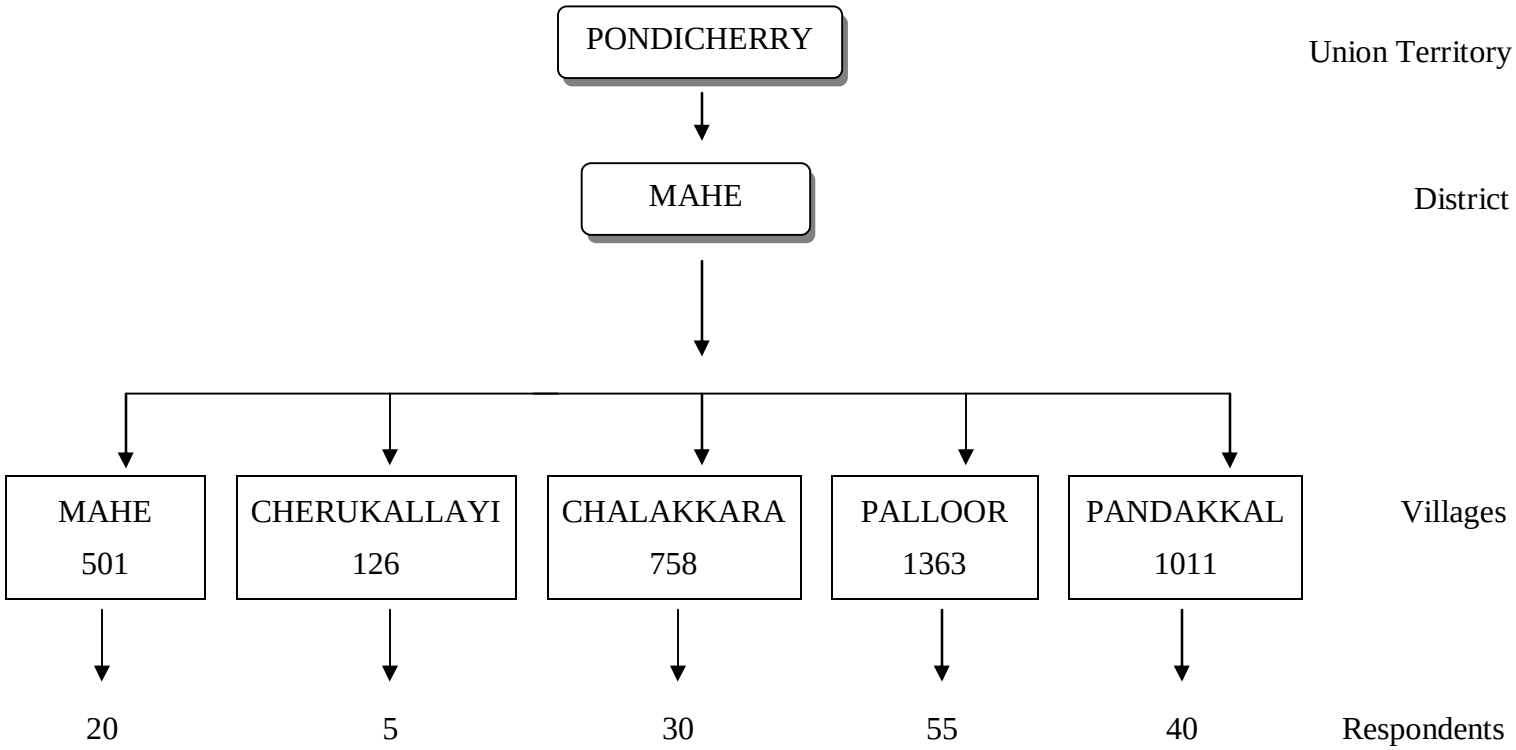



**Fig. 3: Particulars of Sampling**

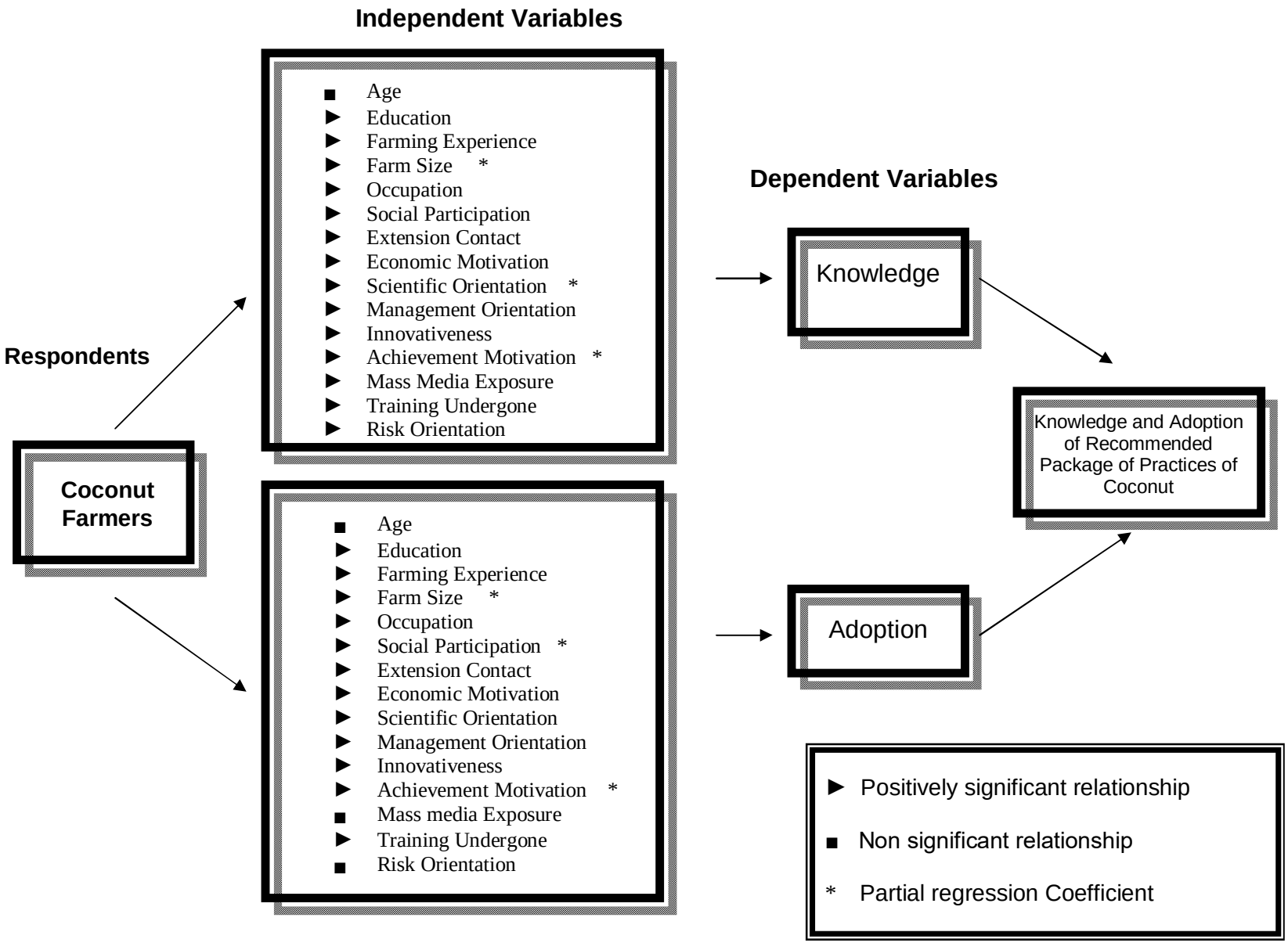



**Fig 23: Empirical Model of The Study**

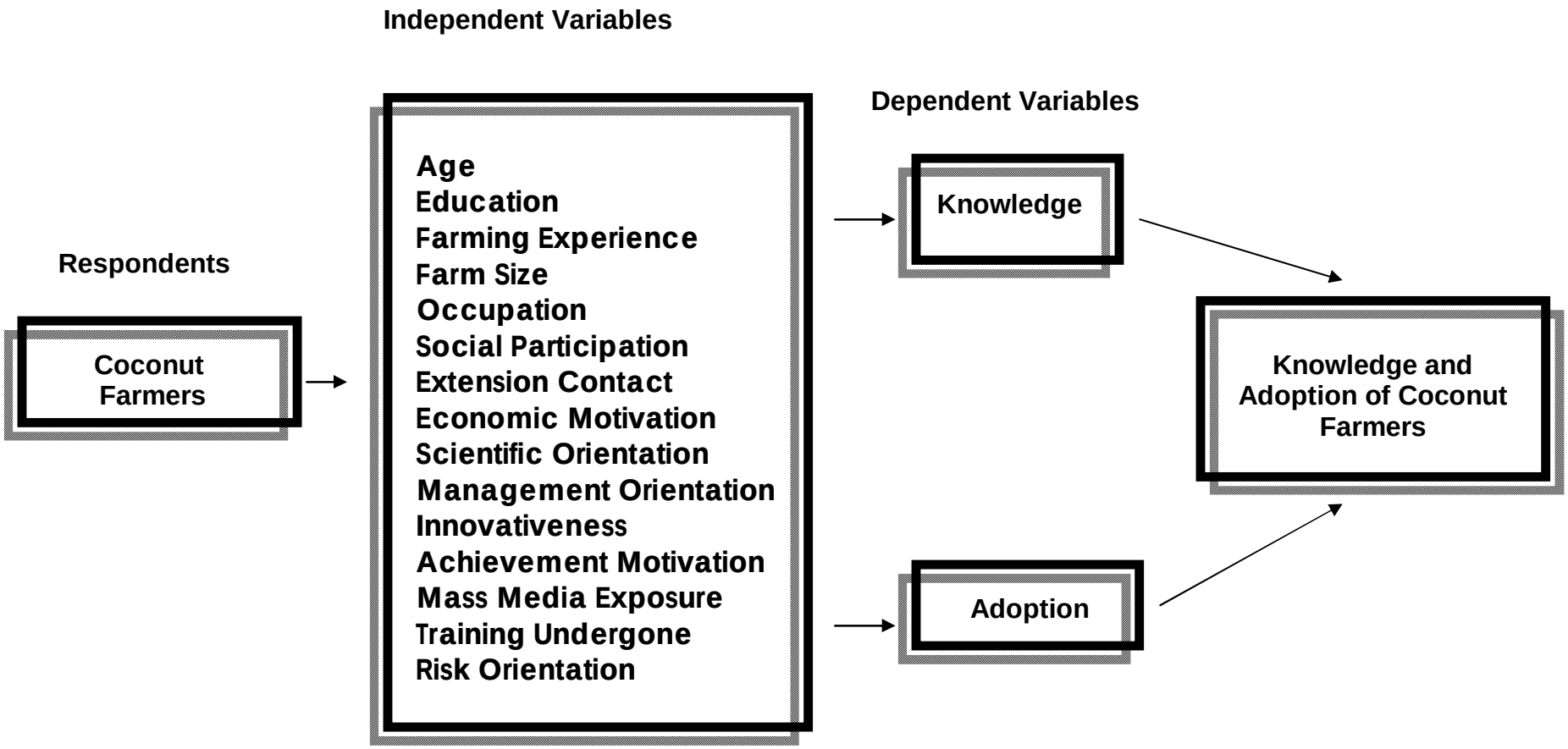



**Fig 1: Conceptual Model of the Study**

# CHAPTER IV

# RESULTS

The prime objective of this investigation was to critically analyze the knowledge and adoption of recommended package of practices of coconut with reference to farmers of Mahe region. The study was organized around the personal, socio psychological and situational characteristics of the farmers in relation with their knowledge and adoption of recommended package of practices of coconut, locating the constraints in adoption and culling out suggestions for improvement.

Keeping in view the objectives of the study, the empirical evidences obtained in terms of factual data through objective research procedures designed and developed for this study have been analyzed in the context of objectives set for the study by subjecting them to the appropriate statistical and analytical tests. The findings thus arrived at are presented either by accepting or rejecting the hypotheses set duly considering the available past research studies in the areas of present investigation. The findings thus arrived at are presented under the following heads.

4.1 Personal, socio psychological and situational characteristics of the coconut farmers.

4.2 Knowledge of the coconut farmers about the production recommendations

4.3 Extent of adoption of coconut recommended practices by the respondents

4.4 Relationship between personal, socio psychological and situational characteristics of the coconut farmers and their knowledge and adoption of recommended practices.

4.5 Constraints involved in adoption of recommended practices by the coconut farmers.

4.6 Suggestions perceived by the coconut farmers to overcome the constraints in adoption of recommended practices.

4.7 Empirical model of the study

## 4.1 PERSONAL, SOCIO PSYCHOLOGICAL AND SITUATIONAL CHARACTERISTICS OF THE COCONUT FARMERS

Distribution of the respondents in to different categories based on their selected Personal, socio psychological and situational characteristics were presented in the tables and interpreted through frequencies and percentages.

### 4.1.1 Age

**Table: 5 Distribution of the respondents according to their age**

(n = 150)

| SL.No | Age | Frequency | Percentage |
|---|---|---|---|
| 1. | Young | 11 | 7.33 |
| 2. | Middle | 59 | 39.33 |
| 3. | Old | 80 | 53.34 |
| | Total | 150 | 100.00 |

Results presented in Table 5 (Fig. 4) indicate that majority (53.34%) of the coconut farmers belonged to old age category followed by middle (39.33%) and young age (7.33%) categories respectively

### 4.1.2 Education

**Table: 6 Distribution of the respondents according to their education**

(n = 150)

| SL.No | Level of Education | Frequency | Percentage |
|---|---|---|---|
| 1. | Illiterate | 0 | 0.00 |
| 2. | Can read and write only | 1 | 0.66 |
| 3. | Primary school | 4 | 2.67 |
| 4. | Middle school | 18 | 12.00 |
| 5. | High school | 83 | 55.33 |
| 6. | Higher secondary school | 25 | 16.67 |
| 7. | Collegiate education | 19 | 12.67 |
| | Total | 150 | 100.00 |

A cursory glance at Table 6 (Fig. 5) reveals that (55.33%) of the respondents were having high school level of education followed by those having higher secondary school (16.67%), collegiate (12.67%), middle school (12.00%), primary school (2.67%) and those who can read and write only (0.66%). No illiterates were available among the respondents.

### 4.1.3 Farming Experience

**Table: 7 Distribution of the respondents according to their farming experience**

(n = 150)

| SL.No | Farming Experience | Frequency | Percentage |
|---|---|---|---|
| 1. | Low | 57 | 38.00 |
| 2. | Medium | 62 | 41.33 |
| 3. | High | 31 | 20.67 |
| | Total | 150 | 100.00 |
| | | Mean: 5.57 | S.D. 0.89 |

A bird's eye view of Table 7 (Fig. 6) indicates that majority (41.33%) of the coconut farmers were having medium farming experience followed by those with low (38.00%) and high (20.67%) farming experience respectively

### 4.1.4 Farm Size

**Table: 8 Distribution of the respondents according to their farm size**

(n = 150)

| SL.No | Farm Size | Frequency | Percentage |
|---|---|---|---|
| 1. | Marginal farmers | 147 | 98.00 |
| 2. | Small farmers | 2 | 1.33 |
| 3. | Big farmers | 1 | 0.67 |
| | Total | 150 | 100.00 |

It could be comprehended from the Table 8 (Fig. 7) that a lion's share (98.00%) of the respondents were marginal farmers followed by a very little extent of small (1.33%) and big (0.67%) farmers respectively.

### 4.1.5 Occupation

**Table: 9 Distribution of the respondents according to their occupation**

(n = 150)

| SL.No | Occupation | Frequency | Percentage |
|---|---|---|---|
| 1. | Farming alone | 57 | 38.00 |
| 2. | Farming + Labour | 4 | 2.67 |
| 3. | Farming + Business | 24 | 16.00 |
| 4. | Farming + Independent profession | 17 | 11.33 |
| 5. | Farming + Service (Govt/Pvt.) | 48 | 32.00 |
| | Total | 150 | 100.00 |

The contents of Table 9 (Fig. 8) indicate that 38.00 per cent of the respondents had farming alone was their occupation followed by those having farming and service in government or private (32.00%), farming and business (16.00%), farming and independent profession (11.33%) and farming and labour (2.67%) as their occupation.

### 4.1.6 Social Participation

**Table: 10 Distribution of the respondents according to their social participation**

(n = 150)

| SL.No | Social Participation | Frequency | Percentage |
|---|---|---|---|
| 1. | Low | 73 | 48.67 |
| 2. | Medium | 15 | 10.00 |
| 3. | High | 62 | 41.33 |
| | Total | 150 | 100.00 |
| | | Mean: 4.83 | S.D. 4.74 |

From Table 10 (Fig. 9) it could be seen that 48.67 per cent of the coconut farmers had low social participation followed by farmers with high (41.33%) and medium (10.00%) levels of social participation in that order.

### 4.1.7 Extension Contact

**Table: 11 Distribution of the respondents according to their extension contact**

(n = 150)

| SL.No | Extension Contact | Frequency | Percentage |
|---|---|---|---|
| 1. | Low | 43 | 28.67 |
| 2. | Medium | 75 | 50.00 |
| 3. | High | 32 | 21.33 |
| | **Total** | 150 | 100.00 |
| | | Mean: 9.99 | S.D. 2.36 |

Table 11(Fig.10) reveals that 50.00 per cent of the subjects had medium extension contact followed by those with low (28.67%) and high (21.33%) extension contact.

### 4.1.8 Economic Motivation

**Table: 12 Distribution of the respondents according to their economic motivation**

(n = 150)

| SL.No | Economic Motivation | Frequency | Percentage |
|---|---|---|---|
| 1. | Low | 35 | 23.33 |
| 2. | Medium | 93 | 62.00 |
| 3. | High | 22 | 14.67 |
| | **Total** | 150 | 100.00 |
| | | Mean: 27.21 | S.D. 3.26 |

If Table 12 (Fig. 11) is pigeonholed, it could be inferred that 62.00 per cent of the respondents had medium economic motivation followed by categories having low (23.33%) and high (14.67%) economic motivation respectively.

### 4.1.9 Scientific Orientation

**Table: 13 Distribution of the respondents according to their scientific orientation**

(n = 150)

| SL.No | Scientific Orientation | Frequency | Percentage |
|---|---|---|---|
| 1. | Low | 26 | 17.33 |
| 2. | Medium | 103 | 68.67 |
| 3. | High | 21 | 14.00 |
| | **Total** | 150 | 100.00 |
| | | Mean: 27.13 | S.D. 3.49 |

Results figured in Table 13 (Fig. 12) show that 68.67per cent of the coconut farmers had medium scientific orientation followed by those with low (17.33%) and high (14.00%) scientific orientation.

### 4.1.10 Management Orientation

**Table: 14 Distribution of the respondents according to their management orientation**

(n = 150)

| SL.No | Management Orientation | Frequency | Percentage |
|---|---|---|---|
| 1. | Low | 39 | 26.00 |
| 2. | Medium | 64 | 42.67 |
| 3. | High | 47 | 31.33 |
| | Total | 150 | 100.00 |
| | | Mean: 48.03 | S.D. 2.87 |

The findings that embellished Table 14 (Fig. 11) reveal that 42.67 per cent of the respondents had medium management orientation followed by farmers with high (31.33%) and low (26.00%) levels of management orientation respectively

### 4.1.11 Innovativeness

**Table: 15 Distribution of the respondents according to their innovativeness**

(n = 150)

| SL.No | Innovativeness | Frequency | Percentage |
|---|---|---|---|
| 1. | Low | 80 | 53.34 |
| 2. | Medium | 53 | 35.33 |
| 3. | High | 17 | 11.33 |
| | **Total** | 150 | 100.00 |
| | | Mean: 11.31 | S.D. 1.88 |

An examination of Table 15 (Fig. 14) throws light that majority (53.34%) of the respondents had low innovativeness followed by subjects with medium (35.33%) and high (11.33%) levels of innovativeness respectively.

### 4.1.12 Achievement Motivation

**Table:16 Distribution of the respondents according to their achievement motivation**

(n = 150)

| SL.No | Achievement Motivation | Frequency | Percentage |
|---|---|---|---|
| 1. | Low | 13 | 8.67 |
| 2. | Medium | 105 | 70.00 |
| 3. | High | 32 | 21.33 |
| | **Total** | 150 | 100.00 |
| | | Mean: 26.81 | S.D. 3.04 |

A bird's eye view of Table 16 (Fig. 15) shows that 70.00 per cent of the coconut farmers had medium achievement motivation followed by farmers with high (21.33%) and low (8.67%) 'n'ach., categories.

### 4.1.13 Mass Media Exposure

**Table: 17 Distribution of the respondents according to their mass media exposure**

(n = 150)

| SL.No | Mass Media Exposure | Frequency | Percentage |
|---|---|---|---|
| 1. | Low | 32 | 21.33 |
| 2. | Medium | 79 | 52.67 |
| 3. | High | 39 | 26.00 |
| | **Total** | 150 | 100.00 |
| | | Mean: 13.43 | S.D. 3.49 |

It could be observed from Table 17 (Fig. 16) that 52.67 per cent of the coconut farmers had medium mass media exposure followed by groups with high (26.00%) and low (21.33%) mass media exposure respectively.

### 4.1.14 Training Undergone

**Table: 18 Distribution of the respondents according to their training undergone**

(n = 150)

| SL.No | Training Undergone | Frequency | Percentage |
|---|---|---|---|
| 1. | Low | 72 | 48.00 |
| 2. | Medium | 46 | 30.67 |
| 3. | High | 32 | 21.33 |
| | **Total** | 150 | 100.00 |
| | | Mean: 3.72 | S.D. 3.06 |

A cursory glance of Table 18 (Fig. 17) reveals that 48.00 per cent of the coconut farmers had low level of training undergone followed by those with medium (30.67%) and high (21.33%) levels of training undergone.

### 4.1.15 Risk Orientation

**Table: 19 Distribution of the respondents according to their risk orientation**

(n = 150)

| S.No | Risk orientation | Frequency | Percentage |
|---|---|---|---|
| 1. | Low | 24 | 16.00 |
| 2. | Medium | 80 | 53.33 |
| 3. | High | 46 | 30.67 |
| | **Total** | 150 | 100.00 |
| | | Mean: 8.82 | S.D. 1.64 |

It could be inferred from Table 19 (Fig. 18) that 53.33 per cent of the coconut farmers had medium risk orientation followed by farmers having high (30.67%) and low (16.00%) risk orientation respectively.

## 4.2 KNOWLEDGE OF THE COCONUT FARMERS ABOUT PRODUCTION RECOMMENDATIONS

The knowledge of the respondents about the recommended coconut practices was measured with the help of the knowledge test developed for the study as detailed in Chapter III. The respondents were categorized in to three groups based on mean and standard deviation, as presented in Table 20 and Figure 19.

**Table: 20 Distribution of the respondents according to their knowledge**

(n =150)

| S.No. | Level of Knowledge | Frequency | Percentage |
|---|---|---|---|
| 1. | Low | 48 | 32.00 |
| 2. | Medium | 58 | 38.67 |
| 3. | High | 44 | 29.33 |
| | Total | 150 | 100.00 |
| | | Mean: 24.74 | S.D. 4.58 |

An examination of Table 20 (Fig. 19) reveals that 38.67 per cent of the respondents had medium knowledge about recommended coconut practices followed by low (32.00%) and high (29.33%) knowledge categories.

## 4.3 EXTENT OF ADOPTION OF RECOMMENDED PRACTICES OF COCONUT BY THE RESPONDENTS

The extent of adoption of recommended practices of coconut by the farmers was measured with the help of adoption index developed for the purpose, as described in Chapter III. The subjects were categorized into three groups viz., low adoption, medium adoption and high adoption groups based on mean and standard deviation.

**Table: 21 Distribution of the respondents according to their extent of adoption**

(n =150)

| S.No. | Extent of Adoption | Frequency | Percentage |
|---|---|---|---|
| 1. | Low | 40 | 26.67 |
| 2. | Medium | 68 | 45.33 |
| 3. | High | 42 | 28.00 |
| | Total | 150 | 100.00 |
| | | Mean: 19.73 | S.D. 4.31 |

An overview of Table 21 (Fig. 20) makes it clear that 45.33 per cent of coconut farmers had medium level of adoption followed by respondents having high (28.00%) and low (26.67%) adoption levels

## 4.4 RELATIONSHIP BETWEEN PERSONAL, SOCIO PSYCHOLOGICAL AND SITUATIONAL CHARACTERISTICS OF THE COCONUT FARMERS AND THEIR KNOWLEDGE AND ADOPTION OF RECOMMENDED PRACTICES

This section analyses the nature of relationship of the selected independent variables with that of dependent variables i.e., knowledge and adoption. In order to study the nature of relationship, the data related to the above aspects were subjected to

correlation coefficient analysis. The values of correlation coefficients (r) were then tested for their statistical significance.

### 4.4.1 Relationship Between the Selected Independent Variables and Knowledge of the Coconut Farmers About Recommended Practices

In order to study the nature of relationship between the selected independent variables and the knowledge of coconut farmers about the recommended package of practices, correlation coefficients (r) were computed and the values are presented in Table 22 (Fig. 21)

This relationship between the scores of selected independent variables and the knowledge of coconut farmers were tested by null hypothesis and empirical hypothesis

**Null Hypothesis**

There will be no significant relationships between the selected independent variables viz., age, education, farming experience, farm size, occupation, social participation, extension contact, economic motivation, scientific orientation, management orientation, innovativeness, achievement motivation, mass media exposure, training undergone and risk orientation and knowledge of the coconut farmers.

**Empirical Hypothesis**

There will be significant relationships between the independent variables viz., age, education, farming experience, farm size, occupation, social participation, extension contact, economic motivation, scientific orientation, management orientation,

innovativeness, achievement motivation, mass media exposure, training undergone and risk orientation and knowledge of the coconut farmers.

**Table: 22 Relationship between the selected independent variables and knowledge of the coconut farmers about recommended practices**

(n = 150)

| S.No | Variable No. | Independent variable | Correlation coefficient (r) values |
|---|---|---|---|
| 1. | $X_1$ | Age | 0.1160 NS |
| 2. | $X_2$ | Education | 0.4420 ** |
| 3. | $X_3$ | Farming experience | 0.1970 * |
| 4. | $X_4$ | Farm size | 0.4070 ** |
| 5. | $X_5$ | Occupation | 0.1680 * |
| 6. | $X_6$ | Social participation | 0.2640 ** |
| 7. | $X_7$ | Extension contact | 0.3220 ** |
| 8. | $X_8$ | Economic motivation | 0.5310 ** |
| 9. | $X_9$ | Scientific orientation | 0.6010 ** |
| 10. | $X_{10}$ | Management orientation | 0.2530 ** |
| 11. | $X_{11}$ | Innovativeness | 0.4900 ** |
| 12. | $X_{12}$ | Achievement motivation | 0.5740 ** |
| 13. | $X_{13}$ | Mass media exposure | 0.1600 * |
| 14. | $X_{14}$ | Training undergone | 0.3090 ** |
| 15. | $X_{15}$ | Risk orientation | 0.1640 * |

* : Significant at 0.05 level of probability

** : Significant at 0.01 level of probability

NS : Non-significant

### *4.4.1.1 Knowledge Vs Age*

It could be observed from Table 22 (Fig. 21) that the computed coefficient of correlation value ('r'= 0.1160) was found non significantly related with knowledge of the

respondents about the recommended package of practices. Hence, the null hypothesis was accepted and empirical hypothesis was rejected. Therefore it could be inferred that there was no significant relationship between age and knowledge of the coconut farmers

#### *4.4.1.2 Knowledge Vs Education*

From Table 22 (Fig. 21) it is evident that the computed coefficient of correlation value ('r'= 0.4420) was positively and significantly related with knowledge of the respondents about the recommended package of practices. Hence, the null hypothesis was rejected and empirical hypothesis was accepted. Therefore it could be confirmed that there was a positive and significant relationship between education and knowledge of the clientele about recommended coconut practices

#### *4.4.1.3 Knowledge Vs Farming Experience*

A bird's eye of Table 22 (Fig. 21) indicates that the computed coefficient of correlation value ('r'= 0.1970) was found positively and significantly related with knowledge of the respondents about the recommended package of practices. As such, the null hypothesis was rejected and empirical hypothesis was accepted. Therefore it could be reported that there was positive and significant relationship between farming experience and the explained variable.

#### *4.4.1.4 Knowledge Vs Farm Size*

The contents of Table 22 (Fig. 21) point out that the computed coefficient of correlation value ('r'= 0.4070) was found positively and significantly related with knowledge of the respondents about the recommended package of practices. So, the null

hypothesis was rejected and empirical hypothesis was accepted. Therefore it could be inferred that there was positive and significant relationship between farm size and knowledge.

#### *4.4.1.5 Knowledge Vs Occupation*

An examination of Table 22 (Fig. 21) reveals that the computed coefficient of correlation value ('r'= 0.1680) was positively and significantly related with knowledge of the subjects about the recommended package of practices. Therefore the null hypothesis was rejected and empirical hypothesis was accepted. Hence, it could be deduced that there was a positive and significant relationship between the variables in question

#### *4.4.1.6 Knowledge Vs Social Participation*

A cursory glance of Table 22 (Fig. 21) shows that the computed coefficient of correlation value ('r'= 0.2640) was positively and significantly related with knowledge of the respondents about the recommended package of practices. Hence, the null hypothesis was rejected and empirical hypothesis was accepted. So, it could be inferred that there was a positive and significant relationship between the antecedent and consequent variables.

#### *4.4.1.7 Knowledge Vs Extension Contact*

Table 22 (Fig. 21) point out that the computed coefficient of correlation value ('r'= 0.3220) was positively and significantly related with knowledge of the respondents about the recommended package of practices. Hence, the null hypothesis was rejected

and empirical hypothesis was accepted. Therefore it could be confirmed that there was a positive and significant relationship between extension contact and knowledge of the respondents about recommended coconut practices

#### *4.4.1.8 Knowledge Vs Economic Motivation*

From a pigeonhole observation of Table 22 (Fig. 21) it is evident that the computed coefficient of correlation value ('r'= 0.5310) was positively and significantly related with knowledge of the respondents about the recommended package of practices. Consequently the null hypothesis was rejected and empirical hypothesis was accepted. Therefore it could be inferred that there was a positive and significant relationship between the above mentioned variables.

#### *4.4.1.9 Knowledge Vs Scientific orientation*

From Table 22 (Fig. 21) it can be crystallized that the computed coefficient of correlation value ('r'= 0.6010) was positively and significantly related with knowledge of the respondents about the recommended package of practices. By above inference the null hypothesis was rejected and empirical hypothesis was accepted. Therefore it could be concluded that there was a positive and significant relationship between the independent and dependent variables

#### *4.4.1.10 Knowledge Vs Management Orientation*

Results in Table 22 (Fig. 21) indicate that the calculated coefficient of correlation value ('r'= 0.2530) was positively and significantly related with knowledge of the respondents about the recommended package of practices. As such, the null hypothesis

was rejected and empirical hypothesis was accepted. Therefore it could be confirmed that there was a positive and significant relationship between management orientation and knowledge of the respondents about recommended coconut practices

#### *4.4.1.11 Knowledge Vs Innovativeness*

Contents of Table 22 (Fig. 21) show that the computed coefficient of correlation value ('r'= 0.4900) was positively and significantly related with knowledge of the respondents about the recommended package of practices. Resultantly, the null hypothesis was rejected and empirical hypothesis was accepted. Therefore it could be inferred that there was a positive and significant relationship between innovativeness and knowledge.

#### *4.4.1.12 Knowledge Vs Achievement Motivation*

From the figures of Table 22 (Fig. 21) it is evident that the coefficient of correlation value ('r'= 0.5740) was positively and significantly related with knowledge of the respondents about the recommended package of practices. As such, the null hypothesis was rejected and empirical hypothesis was accepted. Therefore it could be taken for granted that there was a positive and significant relationship between 'n'ach. and knowledge of the respondents about recommended coconut practices

#### *4.4.1.13 Knowledge Vs Mass Media Exposure*

An overview of Table 22 (Fig. 21) evident that the analyzed coefficient of correlation value ('r'= 0.1600) was positively and significantly related with knowledge of the respondents about the recommended package of practices. So, the null hypothesis was

rejected and empirical hypothesis was accepted. Therefore it could be concluded that there was a positive and significant relationship between mass media exposure and knowledge of the respondents about recommended coconut practices

#### *4.4.1.14 Knowledge Vs Training Undergone*

It could be observed from Table 22 (Fig. 21) that the coefficient of correlation value ('r'= 0.3090) statistically arrived was positively and significantly related with knowledge of the respondents about the recommended package of practices. Hence, the null hypothesis was rejected and empirical hypothesis was accepted. Therefore it could be inferred that there was a positive and significant relationship between the two variables under study.

#### *4.4.1.15 Knowledge Vs Risk Orientation*

Table 22 (Fig. 21) shows that the coefficient of correlation value ('r'= 0.1640) computed was positively and significantly related with knowledge of the respondents about the recommended package of practices. Logically, the null hypothesis was rejected and empirical hypothesis was accepted. Therefore it could be understood that there was a positive and significant relationship between the independent variable and consequent variable.

### 4.4.2 Relationship Between the Selected Independent Variables and Extent of Adoption of Recommended Package of Practices by the Coconut Farmers

In order to study the nature of relationship between the selected independent variables and extent of adoption of recommended practices of coconut by the respondents, correlation coefficients (r) were computed and the values were presented in Table 23 (Fig. 22).

The relationship between the scores of selected independent variables and the scores of extent of adoption of coconut farmers were tested by null hypothesis and empirical hypothesis.

**Null Hypothesis**

There will be no significant relationships between the of selected independent variables viz., age, education, farming experience, farm size, occupation, social participation, extension contact, economic motivation, scientific orientation, management orientation, innovativeness, achievement motivation, mass media exposure, training undergone and risk orientation and extent of adoption of coconut farmers.

**Empirical Hypothesis**

There will be significant relationships between the antecedent viz., age, education, farming experience, farm size, occupation, social participation, extension contact, economic motivation, scientific orientation, management orientation, innovativeness, achievement motivation, mass media exposure, training undergone and risk orientation and the consequent variable (adoption)

**Table: 23 Relationship between the selected independent variables and extent of adoption of recommended practices by the coconut farmers**

(n = 150)

| S.No | Variable No. | Independent variable | Correlation coefficient (r) values |
|---|---|---|---|
| 1. | $X_1$ | Age | 0.1220 NS |
| 2. | $X_2$ | Education | 0.4360 ** |
| 3. | $X_3$ | Farming experience | 0.1840 * |
| 4. | $X_4$ | Farm size | 0.3750 ** |
| 5. | $X_5$ | Occupation | 0.1720 * |
| 6. | $X_6$ | Social participation | 0.2820 ** |
| 7. | $X_7$ | Extension contact | 0.3180 ** |
| 8. | $X_8$ | Economic motivation | 0.5330 ** |
| 9. | $X_9$ | Scientific orientation | 0.5950 ** |
| 10. | $X_{10}$ | Management orientation | 0.2670 ** |
| 11. | $X_{11}$ | Innovativeness | 0.4940 ** |
| 12. | $X_{12}$ | Achievement motivation | 0.6080 ** |
| 13. | $X_{13}$ | Mass media exposure | 0.1310 NS |
| 14. | $X_{14}$ | Training undergone | 0.3090 ** |
| 15. | $X_{15}$ | Risk orientation | 0.1480 NS |

* : Significant at 0.05 level of probability

** : Significant at 0.01 level of probability

NS : Non-significant

### *4.4.2.1 Adoption Vs Age*

From Table 23 (Fig. 22) it is evident that the computed coefficient of correlation value ('r'= 0.1220) was found non significantly related with adoption of the respondents of the recommended package of practices. Hence, the null hypothesis was accepted and

empirical hypothesis was rejected. Therefore it could be inferred that there was no significant relationship between age and adoption of the coconut farmers

#### *4.4.2.2 Adoption Vs Education*

An overview of Table 23 (Fig.22s) reveals that the calculated coefficient of correlation value ('r'= 0.4360) was positively and significantly related with adoption of the respondents about the recommended package of practices. So, the null hypothesis was rejected and empirical hypothesis was accepted. Therefore it could be ascertained that there was a positive and significant relationship between education and adoption of recommended coconut practices by the respondents.

#### *4.4.2.3 Adoption Vs Farming Experience*

A cursory glance of Table 23 (Fig. 22) points out that the coefficient of correlation value ('r'= 0.1840) statistically arrived was found positively and significantly related with adoption of the respondents about the recommended package of practices. As such, the null hypothesis was rejected and empirical hypothesis was accepted. Therefore it could be confirmed that there was positive and significant relationship between the above two variables.

#### *4.4.2.4 Adoption Vs Farm Size*

A bird's eye view of Table 23 (Fig. 22) indicates that the calculated coefficient of correlation value ('r'= 0.3750) was found positively and significantly related with adoption of the respondents about the recommended package of practices. Resultantly, the null hypothesis was rejected and empirical hypothesis was accepted. Therefore it

could be reported that there was positive and significant relationship between the independent and dependent variables.

#### *4.4.2.5 Adoption Vs Occupation*

Contents of Table 23 (Fig. 22) show that the coefficient of correlation value ('r'= 0.1720) statistically arrived was positively and significantly related with adoption of the respondents about the recommended package of practices. Hence, the null hypothesis was rejected and empirical hypothesis was accepted. Therefore it could be concluded that there was a positive and significant relationship between the predictor and predicted variables.

#### *4.4.2.6 Adoption Vs Social Participation*

An examination of Table 23 (Fig. 22) indicates that the coefficient of correlation value ('r'= 0.2820) calculated was positively and significantly related with adoption of the respondents about the recommended package of practices. Hence, the null hypothesis was rejected and empirical hypothesis was accepted. Therefore it could be inferred that there was a positive and significant relationship between the antecedent and consequent variables.

#### *4.4.2.7 Adoption Vs Extension Contact*

If Table 23 (Fig. 22) is pigeonholed it could be observed that the computed coefficient of correlation value ('r'= 0.3180) was positively and significantly related with adoption of the respondents about the recommended package of practices. Accordingly, the null hypothesis was rejected and empirical hypothesis was accepted. Therefore it

could be taken for granted that there was a positive and significant relationship between the independent and dependent variables.

#### *4.4.2.8 Adoption Vs Economic Motivation*

Table 23 (Fig. 22) shows that the statistically derived coefficient of correlation value ('r'= 0.5330) was positively and significantly related with adoption of the respondents about the recommended package of practices. So, the null hypothesis was rejected and empirical hypothesis was accepted. Therefore it could be stated that there was a positive and significant relationship between economic motivation and adoption of recommended coconut practices by the respondents

#### *4.4.2.9 Adoption Vs Scientific Orientation*

Results in Table 23 (Fig. 22) reveals that the calculated coefficient of correlation value ('r'= 0.5950) was positively and significantly related with adoption of the respondents about the recommended package of practices. Hence, the null hypothesis was rejected and empirical hypothesis was accepted. Therefore it could be deduced that there was a positive and significant relationship between the antecedent and consequent variables.

#### *4.4.2.10 Adoption Vs Management Orientation*

It is evident from Table 23 (Fig. 22) that the computed coefficient of correlation value ('r'= 0.2670) was positively and significantly related with adoption of the respondents about the recommended package of practices. As such, the null hypothesis

was rejected and empirical hypothesis was accepted. Therefore it could be pointed out that there was a positive and significant relationship between these two variables.

#### *4.4.2.11 Adoption Vs Innovativeness*

An overview of Table 23 (Fig. 22) points that the computed coefficient of correlation value ('r'= 0.4940) was positively and significantly related with adoption of the respondents about the recommended package of practices. Consequently, the null hypothesis was rejected and empirical hypothesis was accepted. Therefore it could be underlined that there was a positive and significant relationship between innovativeness and adoption of recommended coconut practices by the respondents

#### *4.4.2.12 Adoption Vs Achievement Motivation*

An examination of Table 23 (Fig. 22) indicates that the coefficient of correlation value ('r'= 0.6080) statistically arrived was positively and significantly related with adoption of the respondents about the recommended package of practices. Logically, the null hypothesis was rejected and empirical hypothesis was accepted. As such, it could be confirmed that there was a positive and significant relationship between the above variables.

#### *4.4.2.13 Adoption Vs Mass Media Exposure*

Figures in Table 23 (Fig. 22) show that the analyzed coefficient of correlation value ('r'= 0.1310) was found non-significantly related with adoption of the respondents about the recommended package of practices. Resultantly, the null hypothesis was

accepted and empirical hypothesis was rejected. Therefore it could be stressed that there was no significant relationship between the independent and dependent variables.

#### *4.4.2.14 Adoption Vs Training Undergone*

Findings from Table 23 (Fig. 22) indicate that the statically arrived coefficient of correlation value ('r'= 0.3090) was positively and significantly related with adoption of the respondents about the recommended package of practices. So, the null hypothesis was rejected and empirical hypothesis was accepted. Therefore it could be inferred that there was a positive and significant relationship between the predictor and predicted variables.

#### *4.4.2.15 Adoption Vs Risk Orientation*

Contents of Table 23 (Fig. 22) reveal that the computed coefficient of correlation value ('r'= 0.1480) was found non-significantly related with adoption of the respondents about the recommended package of practices. Hence, null hypothesis was accepted and empirical hypothesis was rejected. Therefore it could be concluded that there was no significant relationship between the above two variables.

### 4.4.3 Combined Effect of All the Selected Independent Variables on Dependent Variables of the Coconut Farmers

#### *4.4.3.1 Combined Effect of All the Selected Independent Variables on Knowledge of the Coconut Farmers About Recommended Package of Practices*

To determine the combined effect of all the selected independent variables in explaining the variation in the knowledge of coconut farmers, Multiple Linear Regression analysis was carried out. The calculated coefficient of determination ($R^2$ ) value with

partial regression coefficient (b) values and their corresponding 't' values are given in Table 24. The '$R^2$' and 'b' values were tested statistically for their significance.

**Table: 24 Multiple linear regression analysis of the selected independent variables with knowledge of the coconut farmers**

| Sl.No. | Variable | Partial regression coefficient values (b) | Computed 't' values |
|---|---|---|---|
| 1. | Age | 0.044 | 0.714 NS |
| 2. | Education | 0.085 | 1.202 NS |
| 3. | Farming experience | -0.021 | -0.338 NS |
| 4. | Farm size | 0.270 | 4.354 ** |
| 5. | Occupation | 0.044 | 0.716 NS |
| 6. | Social participation | 0.118 | 1.714 NS |
| 7. | Extension contact | 0.056 | 0.644 NS |
| 8. | Economic motivation | 0.119 | 1.516 NS |
| 9. | Scientific orientation | 0.199 | 2.182 * |
| 10. | Management orientation | 0.073 | 1.188 NS |
| 11. | Innovativeness | 0.097 | 1.258 NS |
| 12. | Achievement motivation | 0.184 | 2.199 * |
| 13. | Mass media exposure | -0.007 | - 0.108 NS |
| 14. | Training undergone | 0.039 | 0.486 NS |
| 15. | Risk orientation | -0.021 | - 0.347 NS |

* Significant at 0.05 level of probability

** Significant at 0.01 level of probability

NS Non significant

't' VALUE 5% = 1.96 1% = 2.58

F = 11.698 **

$R^2$ = 0.5670

Table 24 reveals that the coefficient of determination '$R^{2'}$ value was significant, as the value of 'F' was found significant. The '$R^{2'}$ value of 0.5670 indicated that all the selected 15 independent variables put together, explained about 56.70 per cent variation in knowledge of the respondents. Hence, it could be stated that the variables selected, to a large extent explained the variation in knowledge of the coconut farmers.

The partial regression coefficients given in Table 24 further revealed that the independent variables namely farm size, scientific orientation and achievement motivation were found to be positively significant as evident from their significant 't' values. This implied that farm size, scientific orientation and achievement motivation had positively and significantly contributed to most of the variation in the knowledge of the respondents about the recommended practices of coconut.

#### *4.4.3.2 Combined Effect of All the Selected Independent Variables on Extent of Adoption of Recommended Package of Practices by the Coconut Farmers*

In order to determine the combined effect of all the selected independent variables in explaining the variation in the extent of adoption of the respondents, Multiple Linear Regression analysis was carried out. The calculated coefficient of determination ($R^2$) value and partial regression coefficient (b) values with their corresponding 't' values are given in Table 25. The '$R^2$ and 'b' values were tested statistically for their significance.

**Table: 25 Multiple linear regression analysis of the selected independent variables with extent of adoption of the coconut farmers**

| S.No. | Variable | Partial regression coefficient values (b) | Computed 't' values |
|---|---|---|---|
| 1. | Age | 0.058 | 0.939 NS |
| 2. | Education | 0.079 | 1.127 NS |
| 3. | Farming experience | - 0.050 | - 0.797 NS |
| 4. | Farm size | 0.228 | 3.716 ** |
| 5. | Occupation | 0.056 | 0.916 NS |
| 6. | Social participation | 0.142 | 2.080 * |
| 7. | Extension contact | 0.031 | 0.363 NS |
| 8. | Economic motivation | 0.119 | 1.541 NS |
| 9. | Scientific orientation | 0.138 | 1.524 NS |
| 10. | Management orientation | 0.093 | 1.514 NS |
| 11. | Innovativeness | 0.113 | 1.486 NS |
| 12. | Achievement motivation | 0.275 | 3.321 ** |
| 13. | Mass media exposure | - 0.044 | -0.721 |
| 14. | Training undergone | 0.051 | 0.647 NS |
| 15. | Risk orientation | -0.034 | -0.556 NS |

* Significant at 0.05 level of probability

** Significant at 0.01 level of probability

NS Non significant

't' VALUE 5% = 1.96 1% = 2.58

F = 12.127 **

$R^2$ = 0.5761

Table 25 indicates that the coefficient of determination '$R^{2'}$ value was significant, as the value of 'F' was found significant. The '$R^2$' value of 0.5761 indicated that all the selected 15 independent variables put together explained about 57.61 per cent variation in the extent of adoption of recommended practices by the respondents. Hence, it could be

stated that the variables selected to a large extent explained the variation in the extent of adoption of recommended practices by coconut farmers. The partial regression coefficients given in Table 25 further revealed that the independent variables namely farm size, social participation and achievement motivation were found to be positively significant as evident from their significant 't' values. This implied that farm size, social participation and 'n' ach. had positively and significantly contributed to most of the variation in the extent of adoption of the respondents about the recommended practices of coconut.

## 4.5 CONSTRAINTS INVOLVED IN ADOPTION OF RECOMMENDED PACKAGE OF PRACTICES BY THE COCONUT FARMERS

During the interview, the coconut farmers were requested to express the constraints encountered by them in the adoption of recommended practices under the following headings.

4.5.1 Land related constraints

4.5.2 Labour constraints

4.5.3 Constraints related to agricultural finance

4.5.4 Input constraints

4.5.5 Technical constraints

4.5.6 Extension constraints

4.5.7 Marketing constraints

Items, which were mentioned by minimum twenty per cent of the respondents as constraint in adoption of practices alone were selected and presented in Table 26.

**Table: 26 Constraints encountered by the respondents in adopting recommended coconut practices**

| S. No | Constraint | Frequency | Percentage | Rank |
|---|---|---|---|---|
| **I** | **Labour Constraints** | | | |
| a. | Inadequate farm labour | 112 | 74.67 | I |
| b. | High cost of labour | 110 | 73.33 | II |
| c. | Inadequate family labour | 83 | 55.33 | III |
| **II** | **Constraints Related to Agricultural Finance** | | | |
| a. | Insufficient finance with farmers | 39 | 26.00 | I |
| **III** | **Input Constraints** | | | |
| a. | Non availability of hybrid seedlings | 109 | 72.66 | I |
| b. | Inadequate input availability | 80 | 53.33 | II |
| c. | Lack of input availability | 38 | 25.33 | III |
| **IV** | **Extension Constraints** | | | |
| a. | Lack of technical guidance | 43 | 28.67 | I |
| b. | Farmers training not conducted frequently | 39 | 26.00 | II |
| c. | Non availability of extension personnel for consultation | 33 | 22.00 | III |
| **V** | **Marketing Constraints** | | | |
| a. | Lack of sufficient government institutions to purchase coconuts | 95 | 63.33 | I |
| b. | Lack of agro industries to avoid fluctuation in prices and also fetch more price for the products | 95 | 63.33 | II |
| c. | Poor market education to the farmers | 62 | 41.33 | III |

An overview of Table 26 reveals that there were no markable land related constraints being faced by the farmers in coconut cultivation. ‘Inadequate farm labour’ (74.67%), ‘high cost of labour’ (73.33%) and ‘inadequate family labour’ (55.33%) were

the important labour constraints, which also bagged the top positions among all the constraints. The only financial problem, the farmers have mentioned was the 'insufficient finance with farmers' identified by 26.00 per cent of the respondents. 72.66 per cent of the respondents rated 'non availability of hybrid seedlings' as the prime constraint regarding inputs followed by 'inadequate input availability' (53.33%) and lack of input availability (25.33%). No technical constraints got mention by minimum twenty per cent of the respondents. Among extension constraints, 'lack of technical guidance' (28.67%), 'farmers training not conducted frequently' (26.00%) and 'non availability of extension personnel for consultation' (22.00%) were identified by the subjects as hindering their adoption of recommended practices. 'Lack of sufficient government institutions to purchase coconuts' (63.33%), 'lack of agro industries to control fluctuation in prices and also to fetch more prices for products' (63.33%) and 'poor market education to farmers' (41.33%) were the marketing constraints expressed by the clienteles.

## 4.6 SUGGESTIONS PERCEIVED BY THE COCONUT FARMERS TO OVERCOME THE CONSTRAINTS IN ADOPTION OF RECOMMENDED PRACTICES

Coconut farmers were asked to make suggestions to overcome the constraints in adoption of recommended practices. Those suggestions made by minimum twenty per cent of the respondents were selected and presented in Table 27.

**Table: 27 Suggestions by the coconut farmers to overcome the constraints in adoption of recommended package of practices**

| SL.No. | Suggestions | Frequency | Percentage | Rank |
|---|---|---|---|---|
| 1. | Provide required quantities of inputs exactly at the time of requirement | 103 | 68.67 | I |
| 2. | Provide farm labour/ labour subsidy through the Agriculture Department | 95 | 63.33 | II |
| 3. | Establish procurement centers for coconut under the control of government | 83 | 55.33 | III |
| 4. | Provide training to farmers in scientific cultivation aspects | 69 | 43.13 | IV |
| 5. | Increase the efficiency of extension staff | 55 | 36.67 | V |
| 6 | Provide agricultural loans | 47 | 31.33 | VI |
| 7. | Take steps for efficient control of Eriophid mite | 46 | 30.67 | VII |
| 8 | Provide crop insurance facilities | 44 | 29.33 | VIII |
| 9 | Provide labour insurance scheme to all the agricultural laborers | 42 | 28.00 | IX |
| 10 | Provide facilities for product diversification | 42 | 28.00 | X |
| 11. | Provide marketing facilities for tender coconut | 31 | 20.67 | XI |
| 12. | Provide market intelligence to farmers | 31 | 20.67 | XII |

It could be observed from Table 27 that a lion's share (68.67%) of respondents suggested to 'provide required quantities of inputs exactly at the time of requirement' followed by 'provide farm labour/ labour subsidy through Agriculture Department' (63.33%), 'establish procurement centers for coconut under the control of government' (55.33%), 'impart increased number of training to the farmers in scientific cultivation aspects' (43.13%), 'increase the efficiency of extension staff' (36.67%), 'provide

agricultural loans' (31.33%), 'take steps for effective control of Eriophid mite' (30.67%), 'provide crop insurance facilities' (29.33%), 'provide labour insurance facilities to all agricultural laborers' (28.00%), 'provide facilities for product diversification' (28.00%), 'provide marketing facilities for tender coconut' (20.67%), and 'provide market intelligence to farmers' (20.67%).

## 4.7 EMPIRICAL MODEL OF THE STUDY

The conceptual model formulated earlier (Fig.1) for this research study was tested based on the results and empirical model was developed and presented in Fig. 23.

This model was hopefully conceived to give an objective assessment of knowledge and adoption of coconut farmers. This model was tested with the help of correlation analysis and regression analysis to find out the relationship between independent and dependent variables.

The independent variables namely education, farming experience, farm size, occupation, social participation, extension contact, economic motivation, scientific orientation, management orientation, innovativeness, achievement motivation, mass media exposure, training undergone and risk orientation were found to be positively and significantly related with knowledge, whereas, only age was found to have positive and non significant relationship.

The independent variables namely education, farming experience, farm size, occupation, social participation, extension contact, economic motivation, scientific

orientation, innovativeness, achievement motivation and training undergone were found to have positive and significant relationship with adoption of recommended package of practices while age, mass media exposure and risk orientation were found to have positive but non significant relationship.

When the variables were subjected to prediction analysis it was found that three independent variables namely farm size, scientific orientation and achievement motivation were found to be significantly contributing in the prediction of knowledge level of the respondents.

With regard to prediction of extent of adoption of recommended package of practices, the independent variables namely farm size; social participation and achievement motivation were found to have significant contribution.

Thus it was quite evident that all the selected independent variables of the farmers indicated in the conceptual model could not correlate with the dependent variables and did not explain 100 per cent variation. As such it could be concluded that there might be some other variables, which were not fitted, in the conceptual model, responsible for predicting the dependent variables of the farmers under study.

***Dependent Variable***

$Y_1$ : Knowledge

***Independent Variables***

| | |
|---|---|
| $X_1$ | Age |
| $X_2$ | Education |
| $X_3$ | Farming experience |
| $X_4$ | Farm size |
| $X_5$ | Occupation |
| $X_6$ | Social participation |
| $X_7$ | Extension contact |
| $X_8$ | Economic motivation |
| $X_9$ | Scientific orientation |
| $X_{10}$ | Management orientation |
| $X_{11}$ | Innovativeness |
| $X_{12}$ | Achievement motivation |
| $X_{13}$ | Mass media exposure |
| $X_{14}$ | Training undergone |
| $X_{15}$ | Risk orientation |

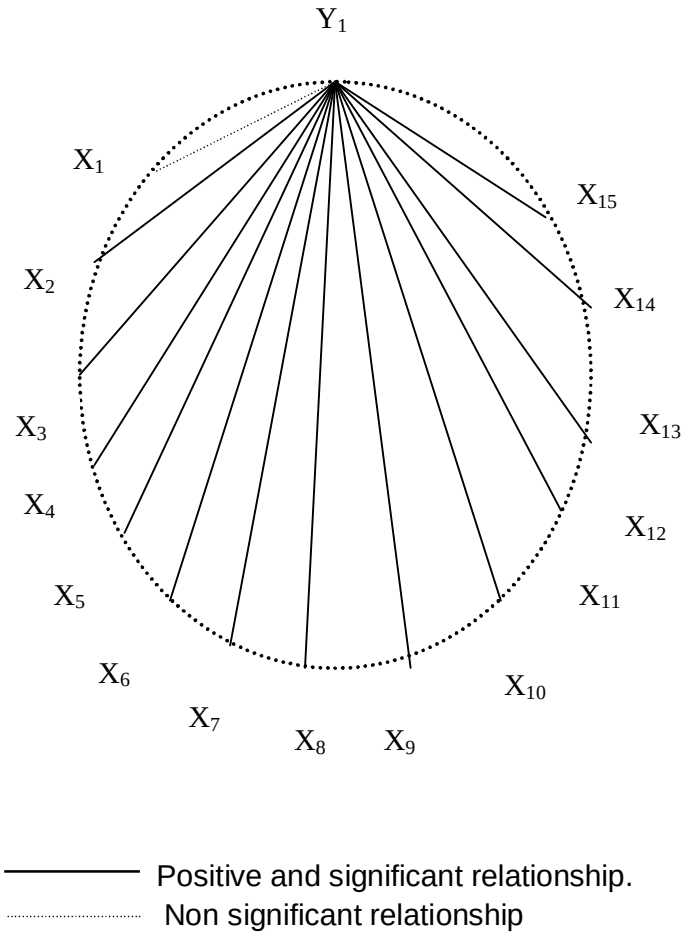



**Fig. 21: Relationship between the selected Independent variables and knowledge of the coconut farmers**

***Dependent Variable***

***Dependent Variable***

$Y_2$ : Adoption

***Independent Variables***

| | |
|---|---|
| $X_1$ | Age |
| $X_2$ | Education |
| $X_3$ | Farming experience |
| $X_4$ | Farm size |
| $X_5$ | Occupation |
| $X_6$ | Social participation |
| $X_7$ | Extension contact |
| $X_8$ | Economic motivation |
| $X_9$ | Scientific orientation |
| $X_{10}$ | Management orientation |
| $X_{11}$ | Innovativeness |
| $X_{12}$ | Achievement motivation |
| $X_{13}$ | Mass media exposure |
| $X_{14}$ | Training undergone |
| $X_{15}$ | Risk orientation |

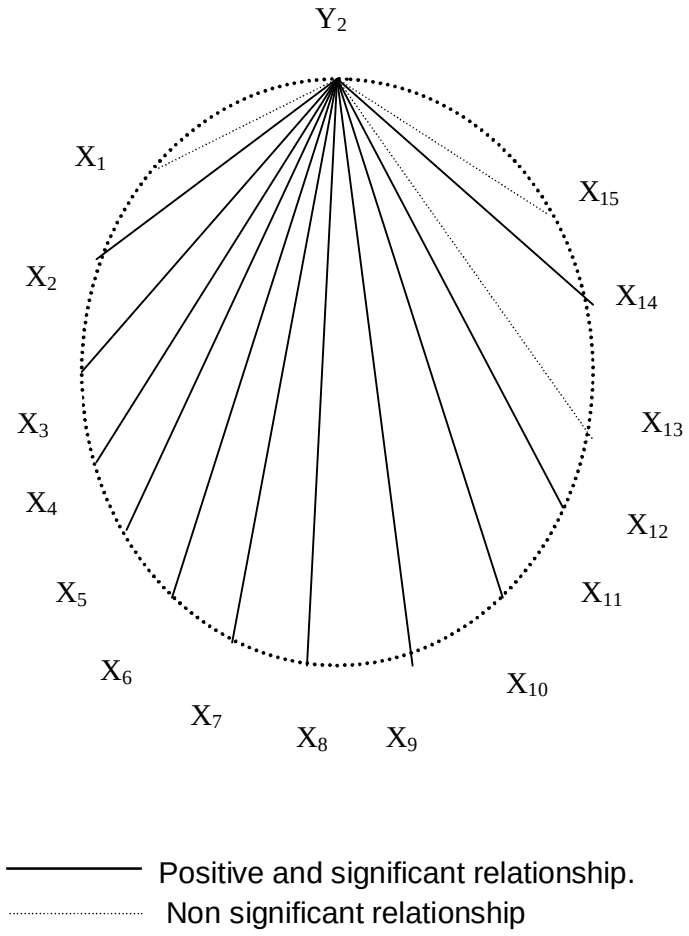



**Fig. 22: Relationship between the selected Independent variables and adoption of the coconut farmers**

**Fig. 4: Distribution of the respondents according to their age**

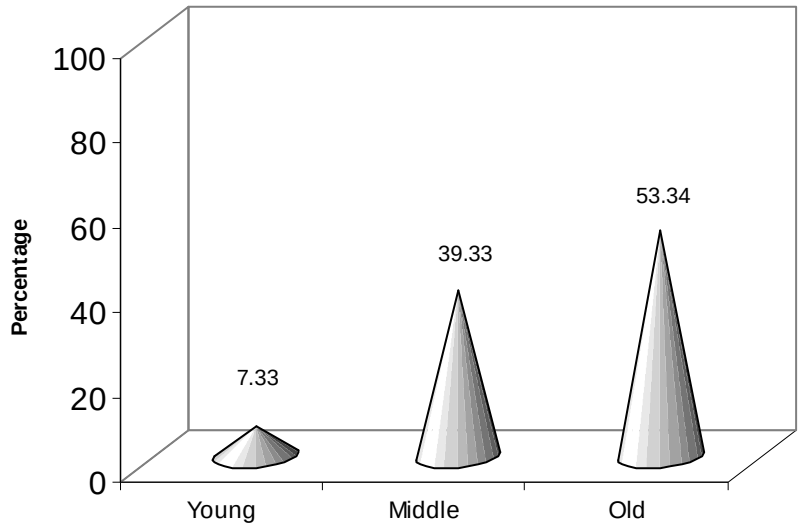



**Fig. 5: Distribution of the respondents according to their education**

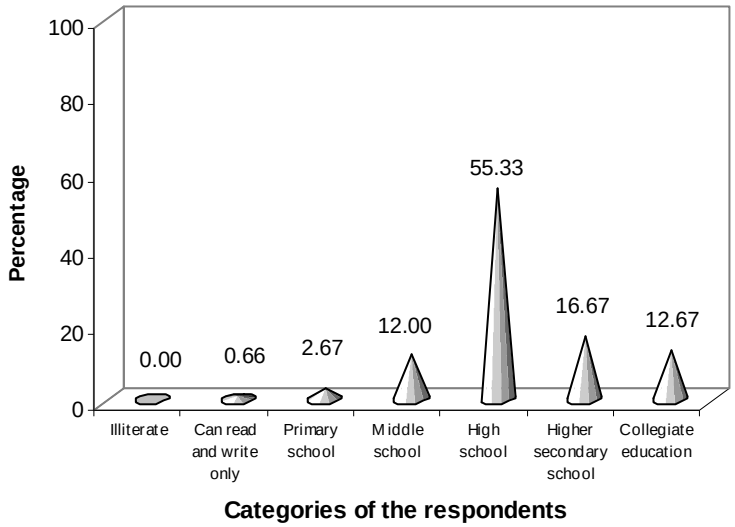


**Fig. 6: Distribution of respondents according to their farming experience**

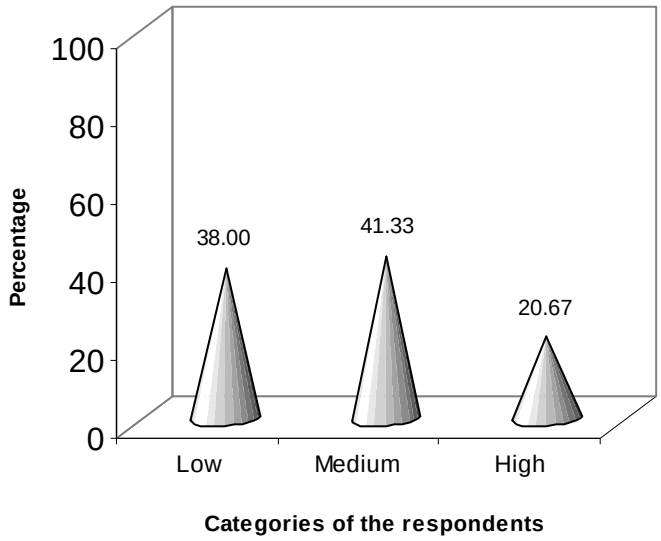



**Fig. 7: Distribution of the respondents according to their farm size**

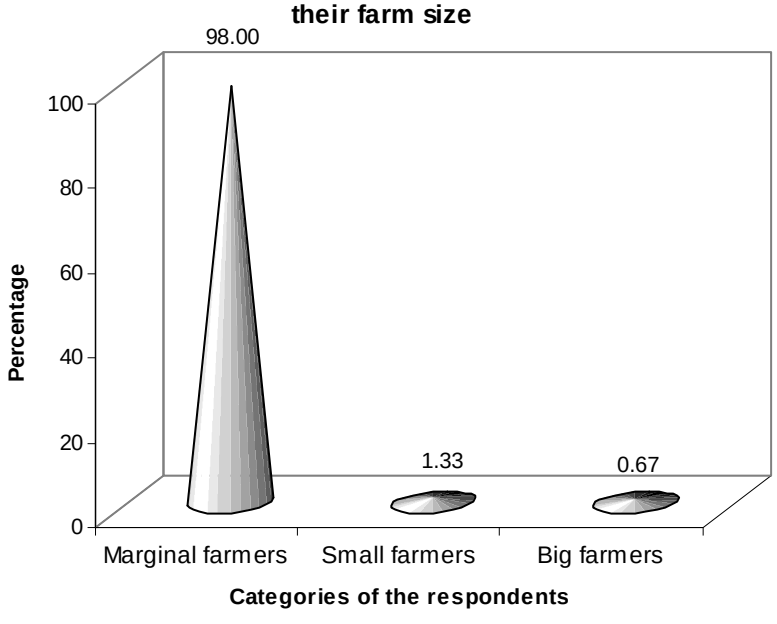


**Fig. 8: Distribution of the respondents according to their occupation**

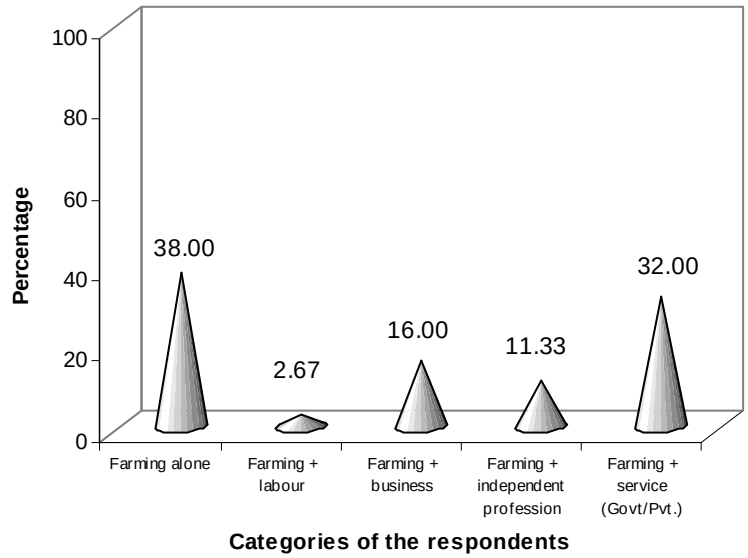



**Fig. 9: Distribution of the respondents according to their social participation**

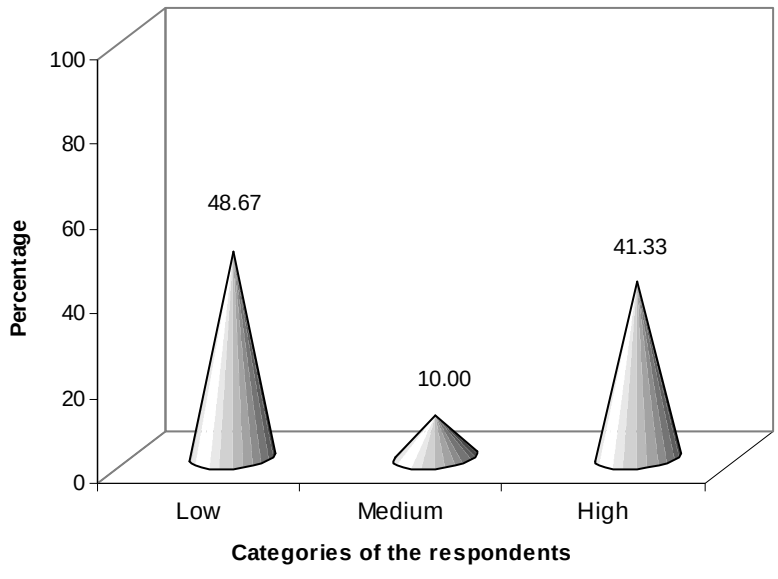


**Fig. 10: Distribution of the respondents according to their extension contact**

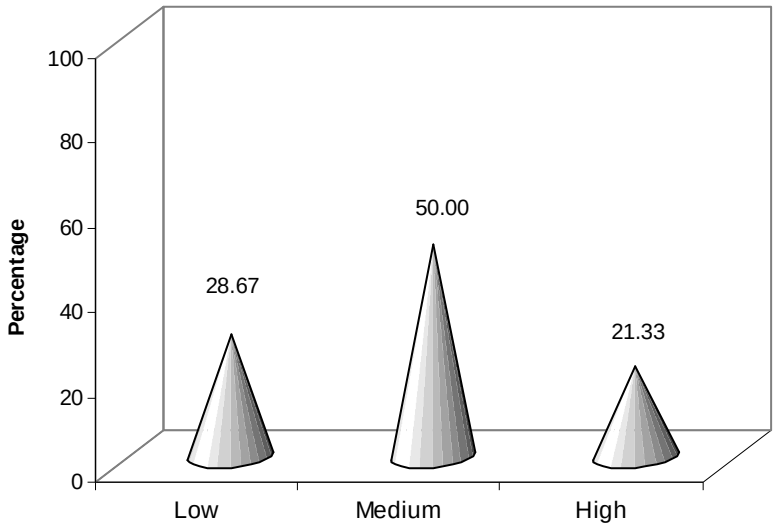



**Fig. 11: Distribution of the respondents according to their economic motivation**

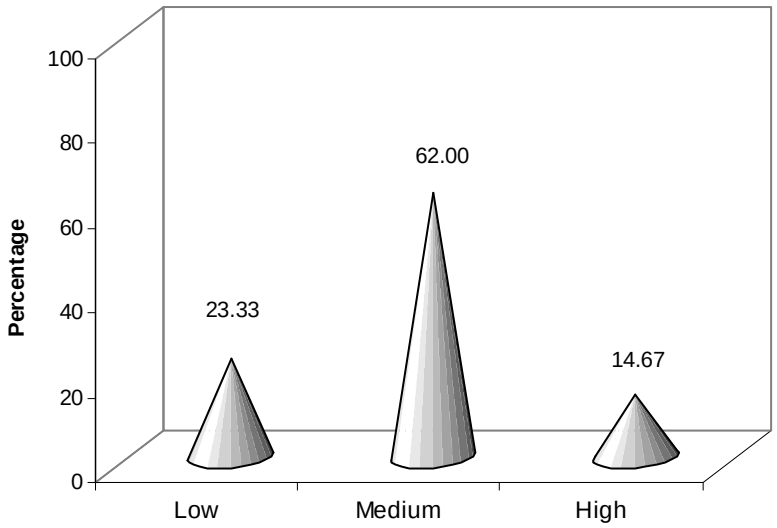


**Fig. 12: Distribution of the respondents according to their scientific orientation**

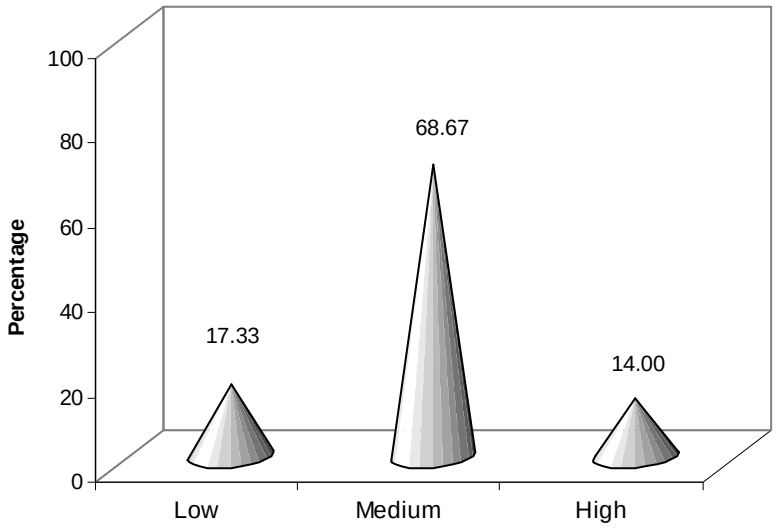



**Fig. 13: Distribution of the respondents according to their management orientation**

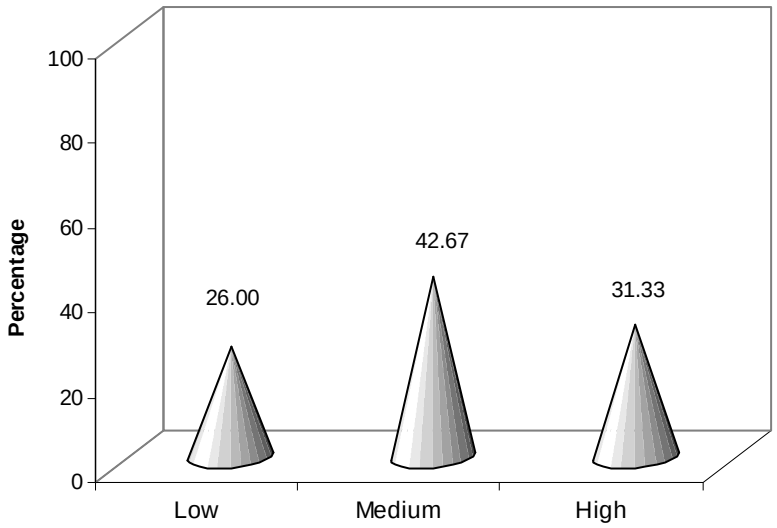


**Fig. 14: Distribution of the respondents according to their innovativeness**

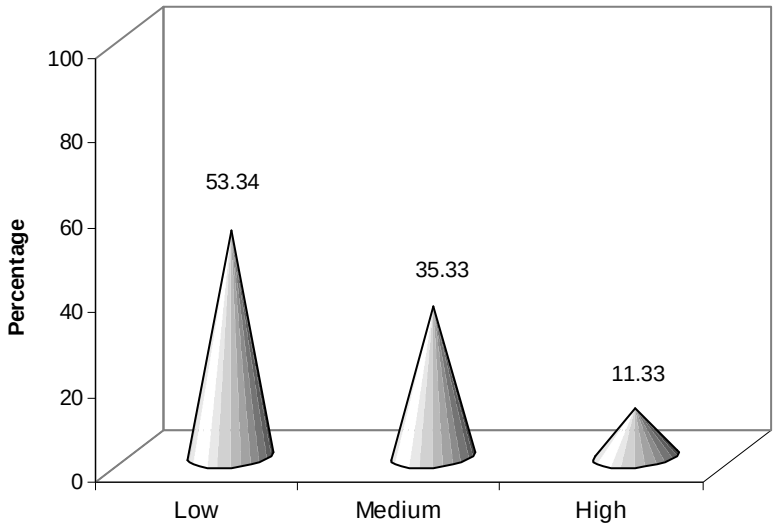



**Fig. 15: Distribution of the respondents according to their achievement motivation**

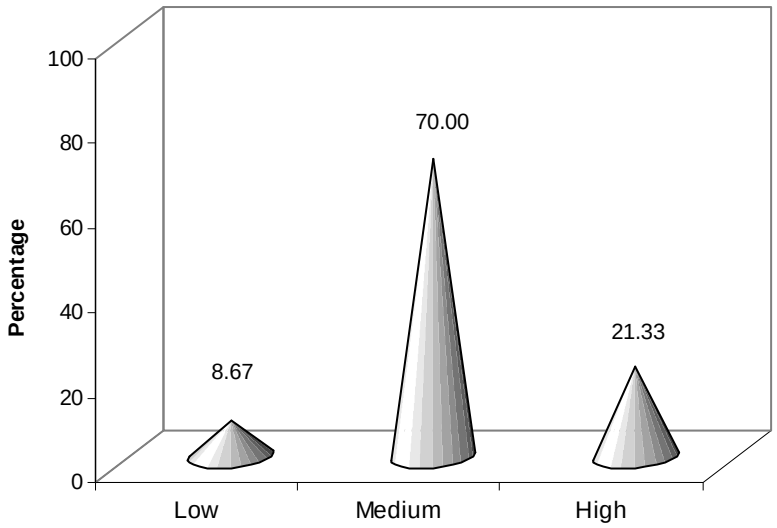


**Fig. 16: Distribution of the respondents according to their mass media exposure**

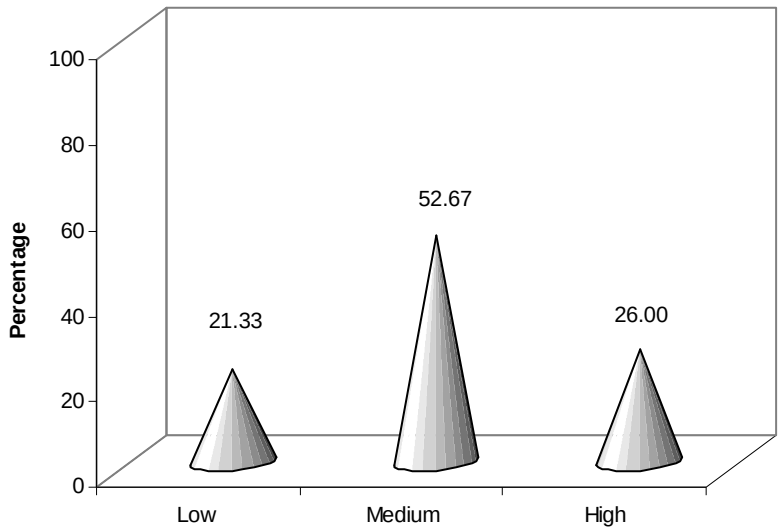



**Fig. 17: Distribution of the respondents according to their training undergone**

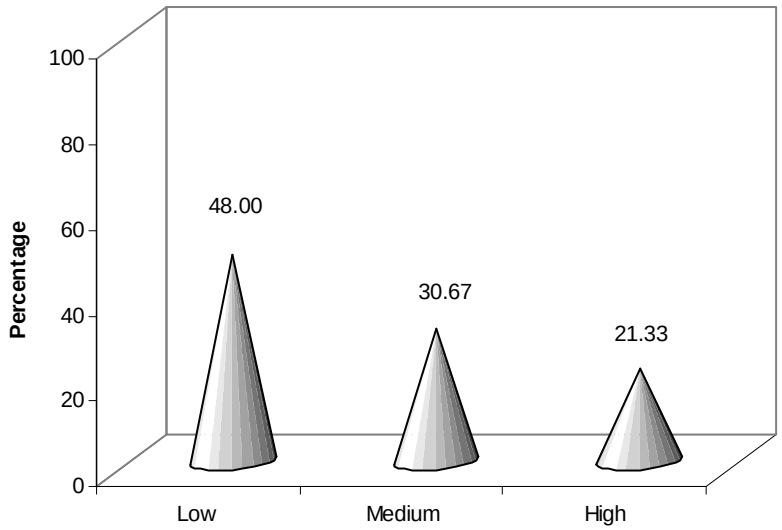


**Fig. 18: Distribution of the respondents according to their risk orientation**

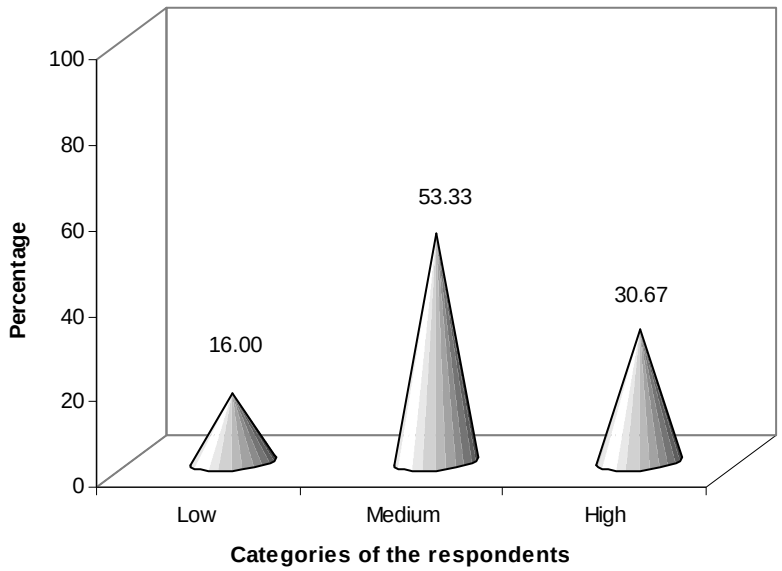



**Fig. 19: Distribution of the respondents according to their knowledge**

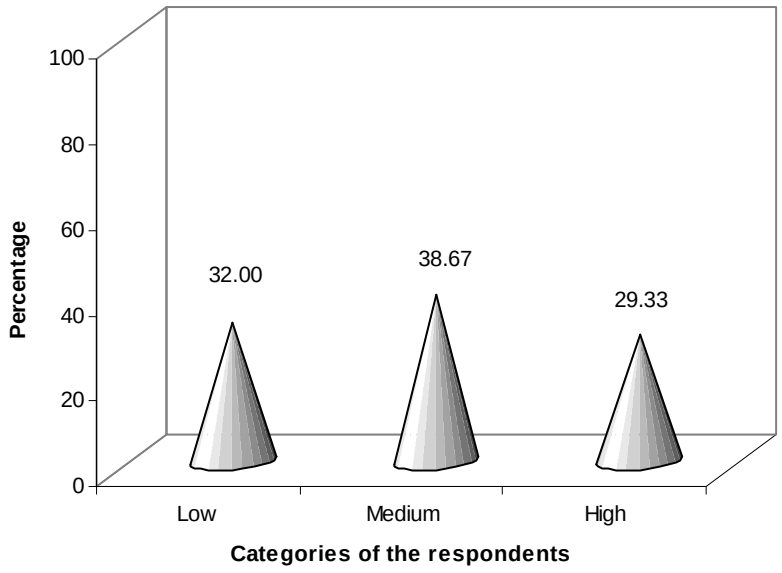
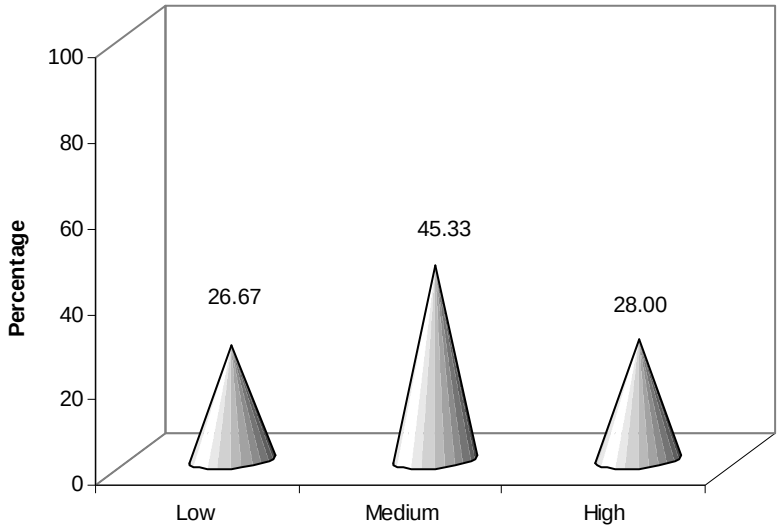


**Fig. 20: Distribution of the respondents according to their extent of adoption**



# CHAPTER V

# DISCUSSION

In this chapter the results were discussed and meaningful conclusions were drawn for which the contents of Chapter IV were used as raw material. Discussion on the results of the study was presented under the following heads.

5.1 Personal, socio psychological and situational characteristics of coconut farmers

5.2 Knowledge of coconut farmers about recommended package of practices

5.3 Extent of adoption of recommended package of practices by coconut farmers

5.4 Relationship between the selected independent variables of coconut farmers and their knowledge and adoption of recommended package of practices

5.5 Constraints encountered by coconut farmers in adoption of recommended package of practices

5.6 Suggestions given by coconut farmers to overcome the constraints in adoption of recommended package of practices.

## 5.1 PERSONAL, SOCIO PSYCHOLOGICAL AND SITUATIONAL CHARACTERISTICS OF COCONUT FARMERS

### 5.1.1 Age

A bird's eye view of Table 5 shows that a large number of farmers were under old age group followed by those under middle age. The probable reason for this might

be that Mahe region being a traditional tract of coconut cultivation and simultaneously a business center enjoying the facilities of union territory, old age group might be more involved in farming activities while a portion of middle age group and majority of youngsters might be engaged in business and other occupations. These middle aged and young farmers might be involving in farming activities after a particular stage. More number of subjects might be in old age due to more medical facilities and high life expectancy.

. The Department of Agriculture of the Union Territory should consider encouraging young farmers, as they are more innovative and enthusiastic for utilization of their knowledge. Middle-aged farmers also must be motivated for involving in farming activities.

The finding is in line with the findings of Chanda Srivastava (1997), Vinoth Kumar (2002) and Sivasubramanian (2003) but not in accordance with the results of Haridasan (1995) and Thomas (2000).

### 5.1.2 Education

It could be observed from Table 6 that majority of the respondents had high school level of education followed by higher secondary and collegiate education. This good education standard might be due to the reasons like presence of more numbers of schools and colleges within easy reach, drift impact of high literacy percentage in the neighboring state of Kerala and the support and encouragement given by elders in pursuing education.

This salutary level of formal education makes it easier for the extensionists to teach farming activities to the farmers and hence this advantage should be exploited by the extension agencies.

This result derives support from the findings of Singha (1991) and Ilayaraja (2001) but is antagonistic to the conclusions of Seema (1999) and Sivasubramanian (2003).

### 5.1.3 Farming Experience

An examination of Table 7 indicated that a greater portion of the respondents had medium level of farming experience followed by those having high and low levels of experiences. Table 9 yells that sizeable number of subjects fell under the category of service sector (government/ private), which might be the plausible reason for this trend.

Farming experience could be enhanced by encouraging more of middle aged and young respondents in farming activities at the early age itself on the principle of 'catch them young' and inspiring them through field visits, group discussions, developing competitiveness etc.

This finding is in concurrence with that of Haridasan (1995) who reported that majority of coconut growers in Kerala state had medium level of farming experience and inference of Venugopala Rao (1996) about farmers in Yanam region. Simultaneously this finding is not in conformity with the results of Venkatta Kumar and Nanjaiyan (1999) and Payal (1999).

### 5.1.4 Farm Size

A perusal of Table 8 revealed that a lion's share of the respondents had marginal farm holdings. This might be due to the fragmentation of land among the family members, as nuclear family system was found more prevalent in the area.

Since farm size cannot be increased the extension agencies have to come forward with technologies more suitable to marginal farmers for increasing the productivity and production.

This inference is supported by the findings of Sivasubramanian (2003) who reported that majority of coconut farmers in Pondicherry were marginal farmers but not in harmony with the statement of Chanda Srivastava (1997).

### 5.1.5 Occupation

A cursory glance of Table 9 pointed out that majority of the respondents had farming alone as their occupation followed by those having service in government or private sector in addition to farming and then those with business and farming as their occupation. Majority of the respondents were involved in farming alone as the area belonged to a traditional tract of coconut cultivation and most of the respondents belonged to old age group. The younger generation might have started engaging in service and business activities because of the charm and lucrativeness attached and failure of agriculture due to manifold reasons.

Farmers engaged in other occupation also must be given adequate consideration and encouragement by extension agencies, so that due to their increased perceiving capacity they will be able to show better results than being mere farmers.

This interpretation is in consonance with the findings of Puthiraprathap(1994) and Ramamurthy (1994) while not agrees with the result of Venugopala Rao (1996).

### 5.1.6 Social Participation

A pigeonhole observation of Table 10 revealed that greater portion of the respondents had low level of social participation. This might be due to the reasons that the majority of the respondents being old aged were not involved in social activities and the study area being a small one the number of social organizations might be less giving less scope for social gregariousness.

Extension agencies should encourage the farmers in social participation by helping them to form youth clubs, welfare associations, more farmers discussion groups etc. so that they will get more exposure.

This observation is in conformity with that of Jayakumar (1994) and not agrees with that of Srinivasan (1999) and Kumar (2002).

### 5.1.7 Extension Contact

It was evident from Table 11 that majority of the respondents had medium level of extension contact. This might be due to the fact that coconut being a perennial crop,

cultural operations need to be carried out only at specific periods in an year and the incidence of pests and diseases will be generally less, which together reduce the need of farmers to meet the extensionists. Extension workers also might be visiting the farmers less frequently due to the perennial nature of the crop.

Extension agencies should organize more demonstrations, group discussions, periodical field visits etc. to increase the extension contact of the farmers for the benefit of them.

Similar result was reported by Jayakumar (1994) and Sivasubramanian (2003) but not tallies with the findings of Venugopala Rao (1996) and Thirumal (1998).

### 5.1.8 Economic Motivation

Table 12 revealed that majority of the subjects had medium level of economic motivation. The plausible reason for this might be that farmers still consider agriculture as a subsistence occupation and not look at it commercially. Further majority of them belonged to old age group with low social participation and medium extension contact, which also reduces their orientation towards profit maximization.

Farmers can be taken for exposure visits and study tours to educate them about better use of inputs and profit maximization so that they get inspired in harvesting more yield and consequently money from their farm holding.

This result corroborates with the findings of Wadea (1998) and Selvanayagi(2002) but disagrees with the reports of Rama Rao (1992) and Venugopala Rao (1996).

### 5.1.9 Scientific Orientation

An overview of Table 13 indicated that majority of the respondents had medium level of scientific orientation followed by low and high level categories. This trend might be due to the fact that the farmers had medium extension contact and mass media exposure. Further majority of them were old aged and senile with less receptive capacity and eagerness to know things scientifically.

Extension personals should take the farmers to research stations, demonstration plots etc and conduct trainings, exhibitions, seminars, etc. to impart more scientific orientation to the farmers.

This report derives support from the inferences of Venugopala Rao (1996) and Anothram (1996) but diverges with the conclusion of Haridasan (1995).

### 5.1.10 Management Orientation

Contents of Table 14 revealed that majority of the respondents had medium level of management orientation followed by categories with high and low levels of management orientation.

Medium levels of scientific orientation, mass media exposure and extension contact might be the reasons for falling majority of the farmers in the category with medium level of management orientation in spite of good level of education.

Extension agencies must encourage the farmers in seeking information about management activities involving planning, production and marketing through mass media exposure, increased extension contact etc.

Similar results were reported by Venugopala Rao(1996),Dayanidhi (1997) and Sathish Rahul(2003).

### 5.1.11 Innovativeness

An examination of Table 15 revealed that majority of the respondents had low level of innovativeness followed by those having medium and high levels of innovativeness. The plausible reasons for this might be that innovativeness is generally associated with young age, while majority of the respondent farmers belonged to old age group. Enthusiasm to hear and adopt new technologies will be less in aged farmers. Further a good number of respondents were having other occupations also in addition to farming which might also reduce the innovativeness as their attention would be diverted to that sector also. Also small and marginal farmers might be possessing less innovativeness than big farmers.

Extension agencies have to take great effort to bring youngsters and middle aged people into farming activities, impart information about latest technologies by

taking them to research stations, scientists, and increasing their mass media exposure and extension contact. Extensionists should also try to convince the farmers that farming as a primary occupation also can support the livelihood provided it is adequately addressed.

This observation is in conformity with the conclusions of Rami Reddy (1997) and Prasad (1997) while not in harmony with the conclusions of Anothram (1996) and Mahitha Kiran (2000).

### 5.1.12 Achievement Motivation

A peep into Table 16 indicated that majority of the respondents had medium level of achievement motivation followed by subjects having high and low levels of achievement motivation. Farmers who had tasted the fruits of achievements in coconut cultivation would have high level of 'n' ach. In the present case farmers with medium level of economic motivation and old age might not be having the inspiration to reach the high levels in achievements. Drastic reduction in yield due to the recent menace, the uncontrollable Eriophid mite also might have restricted the achievement motivation of the farmers.

The authorities should develop competitiveness among the farmers to excel others in their achievements and also come up with suitable and effective measures to control serious pests and diseases.

Similar findings were recorded by Chatterjee (2000), Hemanth Kumar (2002) and Sathish rahul (2003).

### 5.1.3 Mass Media Exposure

It was clear from Table 17 that majority of the subjects had medium level of mass media exposure. The reason for this might be that coconut being a perennial do not warrant daily care and the farmers might be depending on mass media to get information to certain extent and other information might be obtained directly from extension agencies.

Mass media consumption by farmers is the dire need for quick acquisition and evaluation of technologies. Mass media is also considered as the most credible source of information. Hence, the officials may help the farmers to get opportunities to increase the mass media exposure. Of late some states are encouraging farmers to subscribe for periodicals by giving seed money as is the case of RYTHUMITHRA groups in Andhra Pradesh.

This finding derives support from the reports of Subashini(1996) and Sivasubramanian (2003), but do not converge with that of Velusamy (1996) and Chanda Srivastava (1997) .

### 5.1.14 Training Undergone

The figures in Table 18 pointed out that majority of the respondents had low level of training undergone. This might be due to the multiple reasons like- alternatives

being old they might not be much interested in participating in trainings. Engagement of youngsters and middle aged farmers in other occupations and less number of trainings conducted by the extension agencies on account of small area and perennial nature of the crop also might be adding to the above phenomenon.

Officials and extension workers should organize more number of trainings on need based subjects and encourage all age groups of farmers to participate in the training programmes.

This result confirms with that of Sunitha (1998) and Sivasubramanian (2003) while diverges with that of Chanda Srivastava (1997).

### 5.1.15 Risk Orientation

A perusal of Table 19 indicated that majority of the respondents had medium level of risk orientation. This might be due to the reasons that majority of the farmers were having marginal holdings and their economic conditions were also mediocre. Old age, medium level of achievement motivation and involvement in subsidiary occupations by majority of the farmers also might have prevented them from taking much risk in farming.

Extension agencies should take utmost interest to encompass youngsters also into farming activities, take all age groups and marginal farmers to research stations, successful farmers in neighboring areas and orient them towards more achievements from field and more economic returns from farm produce.

This finding derives support from the findings of Hemanth Kumar (2002) and Sivasubramanian (2003).

## 5.2 KNOWLEDGE OF COCONUT FARMERS ABOUT RECOMMENDED PACKAGE OF PRACTICES

A cursory glance of Table 20 pointed out that a greater portion of the respondents had medium level of knowledge followed by those having low and high levels of knowledge. Old age along with medium levels of mass media exposure, extension contact, scientific orientation and low social participation and innovativeness of majority of the respondents might be the factors that restrict the knowledge level of the farmers to medium level in spite of their good level of education. Diversion of attention to subsidiary occupations might also be reducing their opportunities to acquire knowledge.

Extension agencies must concentrate on encouraging young and middle aged people also indulging in farming activities, taking all farmers to research stations and demonstration plots, imparting them frequent trainings and inspiring them to have more extension contact, mass media exposure and social participation so that the farmers will improve their knowledge about recommended package of practices.

Similar findings were reported by Venugopala Rao (1996), Mallarayudu (1997), Wadea (1998) and Anitha Kumari and Jessy George (2003).

## 5.3 EXTENT OF ADOPTION OF RECOMMENDED PACKAGE OF PRACTICES BY COCONUT FARMERS

A bird's eye view of Table 21 indicated that majority of the respondents had medium level of adoption of recommended package of practices followed by those having high and low levels. Majority of the farmers were having medium levels of economic motivation, achievement motivation, scientific orientation, management orientation and knowledge on recommended package of practices. These along with low levels of innovativeness and training undergone might be the reasons for medium level of adoption rather than a high level. Lack of family labour and farm labour coupled with high cost of labour also might have contributed much in lowering the adoption level of farmers.

Competent authorities should bestow their attention in imparting more trainings to the farmers, inculcate the urge to achieve more and more from the field and raise their economic conditions, develop good management orientation and mobilize more numbers of middle aged and youngsters into agricultural activities to increase the extent of adoption of recommended practices to a high level from the present medium level.

This finding derives support from the conclusions of Chanda Srivastava (1997) and VenkattaKumar (1998) while it disagrees with the results of Singha (1995) and Vinoth Kumar (2002).

## 5.4 RELATIONSHIP BETWEEN THE SELECTED INDEPENDENT VARIABLES OF COCONUT FARMERS AND THEIR KNOWLEDGE AND ADOPTION OF RECOMMENDED PACKAGE OF PRACTICES

### 5.4.1 Relationship Between Selected Independent Variables and Knowledge of Coconut Farmers About Recommended Package of Practices

#### *5.4.1.1 Knowledge Vs Age*

An examination of Table 22 indicated that there was a non significant relationship between age and knowledge level of respondents. It is implied that as the age increases, the knowledge level may decrease because the enthusiasm to learn more and the grasping power may be reduced as age passes. Age may not be the contributing factor of knowledge because aged have to shoulder many family responsibilities, which hinder acquisition of knowledge.

This conclusion has support from the findings of Prasaqd (1996), Prasad (1997), Ravichandra Prasad (2002) and Sivsubramanian (2003).

#### *5.4.1.2 Knowledge Vs Education*

An overview of Table 22 pointed out that there was a positive and significant relationship between education and knowledge level of respondents. The possible reason for this trend might be that educated farmers with more information seeking habits had better access to farm information sources such as farm magazines, farm bulletins, books on agriculture etc. and possess better capacity to grasp things and analyze and interpret them in proper ways. Educated people have more exposure to

extension agencies, scientists, and research stations etc., which also contribute to their increased knowledge.

This finding is in conformity with that of Anuradha (1992), Krishna Mohan (1992), Desiga Vinayagam (1994) and Ravishankar (2000).

#### *5.4.1.3 Knowledge Vs Farming Experience*

Results of table 22 revealed that there was a positive and significant relationship between farming experience and knowledge level of farmers. The possible reason for this could be that as experience increases the farmers become well acquainted with the practices by doing rather than by seeing or hearing. Information acquired by 'doing' will be better remembered and will persist for long period.

This result has support from the conclusion of Krishna Murthy (1993) but not in harmony with that of Reddy (1997) and Ravichandra Prasad (2002).

#### *5.4.1.4 Knowledge Vs Farm Size*

Contents of Table 22 indicated that there was a positive, significant relationship between farm size and knowledge of the subjects. This might be due to the fact that large farms with availability of sufficient resources allow farmers to try new innovations for which they will seek more information from various sources leading to increase in the knowledge level.

This finding is in concurrence with that of Prasad (1997), Veeraiah et al. (1998) and Ravishankar (2000) while disagrees with that of Sivanandan (2002).

#### *5.4.1.5 Knowledge Vs Occupation*

A pigeonhole dissection into Table 22 pointed out that there was a positive, significant relationship between occupation and knowledge level of farmers. More the number of occupations coupled with agriculture; wider will be the knowledge because of more exposure, participation and opportunities to get awareness about latest innovations. This might be the reason for the positive and significant relationship between occupation and knowledge.

This conclusion derives support from the findings of Ratnakar (1990), Reddy (1992) and Muneem (1997).

#### *5.4.1.6 Knowledge Vs Social Participation*

An overview of Table 22 revealed that there existed a positive, significant relationship between social participation and knowledge of the respondents. It is a common feature that farmers who actively participate in social activities through social organizations come across different types of people, changes one's views and experiences, seek solutions for their problems and thereby gain more and more new knowledge. Hence the above trend has resulted in this probe.

This inference has support from the findings of Parimalam (1990), Biswas (1990) and Sivanandan (2002) where as Umadevi (1992) and Kumar (1996) reported the opposite.

#### *5.4.1.7 Knowledge Vs Extension Contact*

An examination of Table 22 cleared that there was a positive and significant relationship between extension contact and knowledge level. This might be due to the fact that frequent contact with extension personnel who are competent in advocating agricultural proffering will impart information to the farmers when and where required, thereby increasing their knowledge level.

This conclusion is supported by the observations of Murthy (1990) Manjunath et al. (1993), and Subramaniam (2002).

#### *5.4.1.8 Knowledge Vs Economic Motivation*

A cursory glance of Table 22 indicated that there was a positive significant relationship between economic motivation and knowledge level of farmers. This might be due to the fact that a farmer who wants to improve economically will be trying to gain a better knowledge, than others, by constantly learning the new methods of cultivation.

This observation has support from the findings of Raju (1999), Chatterjee (2000) and Hemanth Kumar (2002) where as diverges with that of Iqbal (1991) and Wadea (1998).

#### *5.4.1.9 Knowledge Vs Scientific Orientation*

A perusal of Table 22 revealed that there was a positive, significant relationship between scientific orientation and knowledge of the respondents. Generally those with good scientific orientation will prefer to know advanced technologies. Here also farmers were likely to vain keen interest in trying to know the latest agricultural practices. Hence the above trend was noticed.

This result has support from the conclusions of Sreedevi (1992) and Rambir and Rao (1996).

#### *5.4.1.10 Knowledge Vs Management Orientation*

Figures in Table 22 pointed out that there was a positive and significant relationship between management orientation and knowledge of the subjects. Farmers having good management orientation in planning, production and marketing will try to gather maximum information about the cultivation and marketing aspects of the crop. This naturally leads to increased level of knowledge. This might be the reason for the positive, significant relationship between the above two.

Similar observations were made by Haridasan (1995) and Vinoth Kumar (2002).

#### *5.4.1.11 Knowledge Vs Innovativeness*

Table 22 indicated that there was a positive and significant relationship between innovativeness and knowledge of farmers. An individual with high innovativeness desires to seek changes in farming and practice the latest technologies. For this he has to

acquire knowledge about the new developments in the field of agriculture. Hence such predicament might have lead to this positive significant relationship.

This observation is supported by the findings of Samuel (1993), Prasad (1997) and Ravichandra Prasad (2002).

#### *5.4.1.12 Knowledge Vs Achievement Motivation*

It was clear from Table 22 that there was a positive, significant relationship between achievement motivation and knowledge of farmers. The reason for this might be that achievement motivation forces an individual to work constantly towards reaching a goal, which he carves for himself and in this process he acquires great amount of knowledge.

This inference agrees with the reports of Krishna Murthy (1993) and Krishnamoorthy (1999).

#### *5.4.1.13 Knowledge Vs Mass Media Exposure*

Contents of Table 22 revealed that there was a positive, significant relationship between mass media exposure and knowledge level of the respondents. It is a general view that mass media exposure enhances the farmers' knowledge as these serve as the accelerators for diffusion of agricultural innovations. Farmers who are in constant touch with mass media are likely to have better knowledge. This might be the reason for the relationship.

Similar findings were observed by Samuel (1993), Prasad (1996) and Rambir and Rao (1996).

### *5.4.1.14 Knowledge Vs Training Undergone*

A look at Table 22 indicated that there was a positive, significant relationship between training undergone and knowledge level of farmers. It is self explanatory that knowledge of farmers increases as they undergo more and more trainings through acquisition of more information. This might be reason for the positive and significant relationship.

This result derives support from the findings of Zotwana (1987), Biswas (1990), Rao (1990) and Prasad (1997).

### *5.4.1.15 Knowledge Vs Risk Orientation*

An overview of Table 22 pointed out that there was a positive and significant relationship between risk orientation and knowledge level of the subjects. The probable reason might be that a farmer who wants to take risk in cultivating crops will try to develop his knowledge with regard to the crop and its cultivation practices.

This result is in conformity with the results of Prasad (1997) and Hemanth Kumar (2002) and disagrees with that of Wadea (1998).

### 5.4.2 Relationship Between the Selected Independent Variables and Extent of Adoption of Recommended Package of Practices by Coconut Farmers

#### *5.4.2.1 Adoption Vs Age*

An examination of Table 23 revealed that there was a non significant relationship between age and adoption of recommended package of practices. It is implied that as age increases, the extent of adoption decreases due to the reduction in the attributes like confidence, motivation etc. in individuals. However some old aged farmers also have good extent of adoption of recommended practices. This might be the reason for the non-significant relationship between the variables.

This result finds support from the observations of Vilas (1993), Chanda Srivastava (1997) and Sivasubramanian (2003).

#### *5.4.2.2 Adoption Vs Education*

Table 23 revealed that there was a positive, significant relationship between education and adoption. This might be due to the reason that if education of farmers is more, their mental horizons are honed up and they will acquire more knowledge about various cultivation aspects and try to practice newly acquired information in their field resulting in increased level of adoption.

This observation is substantiated by the conclusions of Singha (1991), Venugopala Rao (1996) and Latha (2002).

#### *5.4.2.3 Adoption Vs Farming Experience*

A perusal of Table 23 indicated that there was a positive and significant relationship between farming experience and extent of adoption of the respondents. As the experience increases farmers might be able to taste the fruits of new technologies in farming activities and become more and more confident in using better technologies. This might be the reason for the positive and significant relationship between these two variables.

This observation is supported by the results obtained by Haridasan (1995) and Venugopala Rao (1996) while disagrees with the findings of Prakash (1991), Hemanth Kumar (2002), Sathish Rahul (2003) and Sivasubramanian (2003).

#### *5.4.2.4 Adoption Vs Farm Size*

An observation of Table 23 pointed out that there was a positive and significant relationship between farm size and adoption of respondents. In general big farmers are economically sound and they will be willing to take risk and adopt recommended practices in their farms regardless of cost involved where as small and marginal farmers think of their investment and returns expected, before going for adoption of new practices. This might be the reason for such relationship between the variables.

This conclusion is substantiated by the findings of Venugopala Rao (1996) and Chanda Srivastava (1997) while Singha (1991), Prasad (1991) and Sivasubramanian (2003) reported the otherwise. .

#### *5.4.2.5 Adoption Vs Occupation*

A bird's eye view of Table 23 revealed that there was a positive and significant relationship between occupation and adoption level of the subjects. Occupation and adoption normally are the siblings of same genre. Once a farmer is bogged down with more occupational interests, it would logically trigger the quantum of adoption.

This finding is in consonance with the findings of Reddy (1992) and Muneem (1997) while it diverges with that of Venugopala Rao (1996), Chanda Srivastava (1997), and Sivasubramanian (2003).

#### *5.4.2.6 Adoption Vs Social Participation*

An overview of Table 23 pointed out that there was a positive and significant relationship between social participation and extent of adoption of the farmers. The plausible reason might be that increased social participation provides more avenues of getting exposed to different sources and situations related to agriculture, which increases their knowledge, and urge to practice them into the field.

This inference is in conformity with the conclusions of Reddy (1997) and Hemanth Kumar (2002). Sivasubramanian (2003) and Sathish Rahul (2003) reported non significant relationship

#### *5.4.2.7 Adoption Vs Extension Contact*

An examination of Table 23 indicated that there was a positive and significant relationship between extension contact and the extent of adoption of recommended

practices by the respondents. This might be due to the fact that farmers with more extension contact acquire more knowledge about the advanced developments and form favourable attitude, which in turn lead to the adoption of technologies.

This conclusion is supported by the findings of Haridasan (1995), Gandhi (1996) and Venugopala Rao (1996) whilst it does not corroborate with the outcomes of Prakash (1996) and Sivasubramanian (2003).

#### *5.4.2.8 Adoption Vs Economic Motivation*

Results in Table 23 revealed that there was a positive and significant relationship between economic motivation and adoption of recommended package of practices by the subjects. The reason for this might be that farmers with more economic motivation would always try to increase their financial background through harvesting more yields from their farms for which adoption of recommended practices become essential.

This result is substantiated by the conclusions of Ramakrishnan (1999), Rajib Kumar Chatterjee (2000) and Sathish Rahul (2003) but antagonistic to that of Prasad (1996) and Sivasubramanian (2003).

#### *5.4.2.9 Adoption Vs Scientific Orientation*

Figures in Table 23 pointed out that there was a positive and significant relationship between scientific orientation and extent of adoption of farmers. Farmers having more scientific orientation will be motivated to know more scientific

information about improved agricultural technologies. Due to this they might develop favourable attitude towards the technologies, which in turn lead them to adopt new agricultural profferings.

Similar observations were made by Bhat (1994), Anothram (1996) and Raju (1999) while Sivasubramaqnian (2003) concluded a non significant relationship.

#### *5.4.2.10 Adoption Vs Management Orientation*

A pigeonhole examination of Table 23 indicated that there was a positive and significant relationship between management orientation and extent of adoption of recommended practices by the farmers. Management orientation is the ability of a farmer in scientific farm management in planning, production and marketing. Farmers endowed with these attributes could naturally strive hard to get maximum profits by adopting the latest technologies in a scientifically programmed manner. This might be the reason for such relationship between the variables.

This conclusion derives support from the findings of Sakharkar et al. (1992), Venugopala Rao (1996) and Sathish Rahul (2003).

#### *5.4.2.11 Adoption Vs Innovativeness*

It was evident from Table 23 that there was a positive and significant relationship between innovativeness and extent of adoption of farmers. Innovativeness is associated with the individual's earliness in the use of new practices. So a person,

who is more innovative, acquires more knowledge from various sources and adopts the practices without any hesitation and this might be the reason for the above relationship.

This result is similar to that of Samuel (1993) and Subramaniam (2002).

#### *5.4.2.12 Adoption Vs Achievement Motivation*

It could be understood from Table 23 that there was a positive and significant relationship between achievement motivation and extent of adoption of the respondents. It is obvious that a farmer with high achievement motivation will definitely conceive new ideas and skills better than others and this higher order conception might have influenced to have a better level adoption. The positive, significant relationship might be due to this reason.

This conclusion derives support from the findings of Haridasan (1995), Chandra (2000) and Ravichandra Prasad (2002) but it is not in consonance with that of Bhat (1994) and Mahitha Kiran (2000).

#### *5.4.2.13 Adoption Vs Mass Media Exposure*

It was clear from Table 23 that there was a positive but non significant relationship between mass media exposure and extent of adoption of respondents. It is generally implied that as mass media exposure increases, extent of adoption also increases. But divergent result is seen here. Mass media exposure need not always result in adoption because mass media generates only awareness. If it has to lead to adoption, the farmer has to pass through other stages (interests, desire, conviction, action and

satisfaction) also. This may not happen due to multitude of reasons like paucity of finance, short of information, social dislocations in family etc. The present probe must have suffered with some such hiccups.

This result is substantiated by the findings of Chanda srivastava (1997) while Ravisankar (1993), Chandra (2000) and Latha (2002) reported the opposite..

***5.4.2.14 Adoption Vs Training Undergone***

A cursory glance of Table 23 pointed out that there was a positive and significant relationship between training undergone and adoption of respondents. The possible reason for this might be that farmers who have undergone more number of trainings will have more exposure to direct practical knowledge and situations and this lead to increased level of adoption of practices.

This conclusion is substantiated by the findings of Prasad (1993) and Sivasubramanian (2003) but not agrees with that of Rao (1990), Bhagawathswaroop (1993) and Chanda Srivastava (1997).

***5.4.2.15 Adoption Vs Risk Orientation***

Table 23 revealed that there was a positive but non significant relationship between risk orientation and extent of adoption. A farmer who is couraged to face uncertainties and ready to take risk in cultivation of crops will naturally adopt the recommended practices. However farmers with low risk orientation also have exhibited increased extent of adoption out of their scientific orientation, management orientation

economic motivation and achievement motivation. This might be the reason for the positive but non significant relationship between the above two variables.

This observation is substantiated by the findings of Raju (1999) and Sivasubramanian (2003) where as Chandran (1993), Haridasan (1995) and Hemanth Kumar (2002) reported the opposite relationship.

### 5.4.3 Combined Effect of All the Selected Independent Variables on Knowledge and Adoption of Recommended Package of Practices by Coconut Farmers

#### *5.4.3.1 Combined Effect of All the Selected Independent Variables on Knowledge of Coconut Farmers About Recommended Package of Practices*

It was evident from Table 24 that all the selected fifteen independent variables put together explained about 56.70 per cent variation in the knowledge of the respondents about recommended package of practices of coconut as indicated by the $R^2$ value which was significant. Thus it could be concluded that the variables selected explained the variation in the knowledge of the respondents to a larger extent. In other words the variables selected for the study were relevant to the problem selected.

When partial regression coefficients were tested, it further revealed that farm size, scientific orientation and achievement motivation were positively significant as indicated by their 't' values. It could be concluded that the above three had positively and significantly contributed for most of the variation in the knowledge of the respondents about recommended package of practices of coconut.

When the farm size increases the farmers will be sounder economically and will have the quest to gather information about latest and advanced technologies to reap the maximum dividends from the land. This will result in nourishing the knowledge level of the farmers and hence it was found significant.

Scientific orientation is the degree to which an individual is oriented to the use of scientific methods in farming and decision-making. An individual with good scientific orientation will seek new information and accumulate in his knowledge treasure. Hence the scientific orientation also was found positively significant.

In general farmers with good achievement motivation will gather information about new technologies for accomplishing his achievements in a better way than others. Thus achievement motivation also was found positively significant.

#### *5.4.3.2 Combined Effect of All the Selected Independent Variables on Extent of Adoption of Recommended Package of Practices by Coconut Farmers*

A perusal of Table 25 indicated that all the selected fifteen independent variables put together explained 57.61 per cent variation in the extent of adoption of recommended package of practices of coconut by the respondents as expressed by the $R^2$ value which was significant. Hence it could be inferred that the variables selected had explained the variation in the extent of adoption of recommended package of practices to a large extent. So the variables selected for the study were relevant to the problem selected.

When the partial regression coefficients were tested, it was observed that farm size, social participation and achievement motivation were positively significant as indicated by the 't' values. It was inferred that the above three variables had positively and significantly contributed for most of the variation in the extent of adoption of recommended package of practices by the respondents.

Higher the farm size better will be the economic conditions and more will be enthusiasm of the farmers to adopt new and advanced technologies at least in smaller areas initially and in larger areas over a period of time. Hence the farm size was found positively significant.

Higher level of social participation enables the farmers to be in touch with various sources of information and leads to increased level of exposure. These will favour the extent of adoption of recommended practices in a better manner than those having less social participation. Hence the significant effect of social participation was found.

Increased level of achievement motivation makes the farmers to gather more information on farming activities to practice in the field and harvest more yields with a motto to excel others. This leads to increased level of adoption of recommended practices. This might be the reason for the significant positive contribution by 'n'ach., towards the extent of adoption.

## 5.5 CONSTRAINTS ENCOUNTERED BY COCONUT FARMERS IN ADOPTION OF RECOMMENDED PACKAGE OF PRACTICES

Constraints commonly experienced by coconut farmers in adoption of recommended package of practices were categorized into seven groups as follows.

- Land related constraints
- Labour constraints
- Constraints related to agricultural finance
- Input constraints
- Technical constraints
- Extension constraints
- Marketing constraints

Among all the constraints mentioned above the following were the few important and foremost ones according to the frequencies and percentages used.

- Inadequate farm labour (74.67 %)
- High cost of labour (73.33 %)
- Non availability of hybrid seedlings (72.66 %)
- Lack of sufficient government institutions to purchase coconut (63.33%)
- Lack of agro industries to avoid fluctuation in prices and also fetch more prices for products (63.33 %)
- Inadequate family labour (55.33 %)
- Inadequate input availability (53.33 %)
- Poor market education to farmers (41.33 %)

A discussion on group wise constraints is presented below.

No land related constraints were identified as none of the items under the group were mentioned by minimum twenty per cent of the respondents.

Under the labour constraints, ‘inadequate farm labour’, ‘high cost of labour’ and ‘inadequate family labour’ were the important items expressed by the farmers. Inadequate farm labour, the top most among all the constraints, might be due to the reason that most of the youngsters after getting good level of education will be seeking job in the field of business or self profession or service in government or private sector instead of going for farm labour. Impact of nuclear family system leading to fragmentation of holdings making a family unable to live solely depending on farming, also tempt the individuals to seek occupations in other sectors. High cost of labour might have resulted from the high demand for farm labour and the consumerism prevailing in the region as a whole, which leads to increase in cost of living. Impact of nuclear family system and heavy propaganda on small family norms along with good level of education might be the reasons for the constraint- inadequate family labour. All these serve as severe constraints in the pathway of adoption of recommended package of practices by the farmers.

To solve the labour related problems the concerned agencies should make the agricultural labour sector an attractive one by providing labour insurance schemes, unemployment allowances, pension schemes, etc. Agriculture Department can also engage laborers on contract basis and supply to the needy farmers at reasonable charges. Providing labour subsidy to the farmers through the department also can be considered as a solution for the problem.

Similar results were reported by Venugopala Rao (1996), Anitha Kumari et al. (2003) and Sivasubramanian (2003).

The only constraint related to agricultural finance mentioned by the farmers was 'insufficient farm finance with the farmers'. Majority of them being marginal farmers, their income from the land and other occupations of family members might be sufficient to run the day to day life in an area with increased cost of living and high level of consumerism. They might not be able to save much from the returns they get from the field to go in for adoption of advanced technologies. Thus this constraint reduces the level of adoption of the farmers.

Financial agencies have to look forward to come up with schemes suitable for small and marginal farmers at lesser interest rates with longer repayment schedule considering the perennial nature of the crop (coconut).

Similar findings were reported by Venugopala Rao (1996).

'Non availability of hybrid seedlings' followed by 'inadequate availability of inputs'and 'lack of availability of inputs' were the constraints related to inputs, according to the respondents. For hybrid seedlings the farmers have to depend on Kerala State Agriculture Department Farms and Central Plantation Crops research Institute, Kazargod and Kayamkulam. Production of hybrid seedlings from these sources seem to be bare minimum because of the cumbersome process involved in hybridization and found to be inadequate to meet the requirements. Private agencies

cannot be completely relied for hybrid seedlings. This compels the farmers to go for less yielding and locally available varieties.

In Mahe region inputs are distributed through M/s PASIC Ltd. (Pondicherry Agro Services and Industries Corporation Ltd.), which is a quasi government agency. As large amounts of subsidies are involved in distribution of inputs, restriction is maintained by the extension agency to see that majority of the farmers enjoy some portion of subsidy rather than a few knocking more benefits. So the farmers might not be provided with all their requirements of inputs and some quantities they have to get by paying the full costs. This might be the reason for the farmers mentioning inadequate availability of inputs as a constraint.

Inputs will be distributed by the input agency on first come first serve basis. Hence the late comers might some time not be able to get the inputs on subsidy basis. This might be the reason behind the expression of lack of inputs as a constraint by the farmers.

Extension agencies have to take necessary steps in advance to stock the required inputs like hybrid seedlings, fertilizers, organic manures, plant protection chemicals, implements etc to ensure timely supply of these inputs to the needy farmers in required quantities. Adequate measures are to be taken to see that all farmers get the inputs based on their land holding and requirement.

Non-availability of hybrid seedlings was reported as a constraint by Ajeya Kallam (1996) while inadequate availabilitys and lack of availability of inputs were reported as constraints in the studies made by Haridasan (1995) and Vinoth kumar (2002).

An overview of Table 26 revealed that 'lack of technical guidance', 'farmers trainings not conducted frequently' and 'non-availability of extension personnel for consultation' were the major items under extension constraints. Lack of sufficient field functionaries like Agricultural Officers, Village Level Workers and Demonstration Assistants might be the reason for the above constraints.

The Government of Union Territory of Pondicherry has to take necessary steps to provide required staff to the extension agency, which in turn has to assure that the staff perform their duties regularly, and sincerely for the upliftment of the farmers.

Similar findings were reported by Venugopala Rao (1996).

Among the last group namely marketing constraints, 'lack of sufficient government institutions to purchase coconuts', 'lack of agro industries to avoid fluctuation in prices and to fetch more prices for the products', and 'poor market education to the farmers' were the most important items spelled out by the farmers.

Lack of agencies like NAFED (National Agricultural Co-operative Marketing Federation of India Ltd) at national level and KERAFED (Kerala State Agricultural

Produce Marketing Federation Ltd) at state level in Kerala persists as a big lacuna in the field of marketing of agricultural products. Absence of any agro industries except a few coconut oil mills is another draw back. The extension agency at present concentrating only on increasing the productivity and production with out considering the marketing facilities and marketing problems also add to the predominance of marketing constraints.

The Department of Agriculture has to provide regular information on market intelligence to the farmers to make them aware of market prices and demand. Establishment of agencies under government control to procure coconut and its products; coconut based agro industries for value addition and market linked services will help the farmers to get their products sold at better prices and also to prevent the price fluctuation to a large extent.

The above findings derive support from the findings of Venugopala Rao (1996) and Chanda Srivastava (1997).

## 5. 6 SUGGESTIONS GIVEN BY COCONUT FARMERS TO OVERCOME THE CONSTRAINTS IN ADOPTION OF RECOMMENDED PACKAGE OF PRACTICES

A look into Table 27 revealed that majority of the respondents had suggested to 'provide the required inputs in required quantities exactly at the actual time of requirement' to tide over the constraints like lack of availability and inadequate availability of inputs thereby increasing the extent of adoption of recommended

package of practices. ‘Providing farm labour or labour subsidy through the Department of Agriculture’ occupied the second position among the suggestions to solve the problems of non-availability and high cost of farm labour. ‘Establishing procurement centers for coconut and its products under the control of government’ was also suggested so that the farmers can go ahead with adoption of recommended practices for increased production without any fear about price fluctuation and non-remunerative prices. ‘Imparting increased number of trainings to the farmers about scientific cultivation aspects’ was also one among the important suggestions. A suggestion to ‘increase the efficiency of extension staff’ through periodical evaluation of their knowledge level and imparting trainings in scientific cultivation aspects and latest developments was also put forward by some respondents as a solution to some extension constraints. ‘Provide agricultural loans’, take steps for effective control of Eriophid mite’, ‘provide crop insurance facilities’, ‘provide labour insurance facilities to all agricultural laborers’, ‘provide facilities for product diversification’, ‘provide marketing facilities for tender coconut’, and provide market intelligence to the farmers’ were the other suggestions given by the farmers.

Ensuring timely supply of quality inputs in required quantities, taking care of the labour problems in relation to availability and cost involvement, providing financial assistances suitable to marginal farmers cultivating perennial crops, providing periodical trainings to the farmers as well as to the extension workers, providing adequate marketing facilities through government and private agencies and educating the farmers in market intelligence are some of the possible steps that could be taken at

the government level to solve the constraints faced by the coconut farmers of Mahe region in adopting the recommended package of practices.

Similar types of conclusions were reported by Haridasan (1995), Venugopala Rao (1996), Chanda Srivastava (1997), Vinoth Kumar (2002) and Sivasubramanian (2003).

# CHAPTER VI

## SUMMARY

Coconut with synonyms 'Kalpavriksha', 'Tree of Heaven' 'Tree of Life' etc. is an important perennial crop in the southern parts of the country, especially in Kerala, Karnataka and Tamil Nadu. Maharashtra, Assam and West Bengal are the other important states in the country with quotable area under the crop while Pondicherry, Lakshadweep and Andaman and Nicobar Islands get mention as union territories with coconut under large areas.

The tree deserves its synonyms because all parts of the tree are useful in one way or other like food, fuel, drink, industrial purpose decorative purpose and aesthetic purposes.

India stands third in area and first in production of coconut among eighty coconut producing countries in the world. The average productivity of coconut in India is 6776 nuts per hectare, which is far below the average productivity as compared to the productivity of Union Territory of Lakshadweep, which is 19667 nuts per hectare, as per 2001-2002 statistics. Having such a potential, it becomes a necessity to increase the production to sustain the farmers and lakhs employed in various coconut based industries and also to enhance the receipt of foreign exchange through export of coir materials,

handicrafts and other coconut products. This can be achieved by adopting recommended package of practices by the coconut farmers.

Mahe region, a part of the Union Territory of Pondicherry embedded geographically in Kerala state, is a traditional tract of coconut cultivation where the productivity is 9600 nuts per hectare which is lesser than the average productivity in the territory as a whole. A study of the knowledge of the farmers about recommended package pf practices paves way to assess the extent to which they adopt the recommended practices. Since no systematic studies have been undertaken, the present study was the modest attempt by the investigator to probe the knowledge and adoption of recommended package of practices.

## 6.1 SPECIFIC OBJECTIVES OF THE STUDY

6.1.1 To study the personal, socio psychological and situational characteristics of coconut farmers.

6.1.2 To assess the knowledge of the coconut farmers towards the recommended package of practices of coconut production.

6.1.3 To determine the extent of adoption of recommended package of practices of coconut production by the farmers.

6.1.4 To find out the relationship between personal, socio psychological and situational variables and the selected dependent variables.

6.1.5 To find out the constraints that influence the extent of adoption of recommended package of practices of coconut production.

6.1.6 To elicit suggestions to obviate the constraints faced by the farmers in adopting the coconut production recommendations.

## 6.2 REVIEW OF LITERATURE

Keeping in view of the specific objectives of the study, relevant literature on various aspects were reviewed and finally a conceptual model for the study was derived.

## 6.3 RESEARCH DESIGN

Ex-post-facto research design was used for the present investigation.

## 6.4 SAMPLING PROCEDURE

Mahe region of the Union Territory of Pondicherry was purposively selected for conducting the research. All the five villages of the region were selected from which 150 coconut farmers possessing a minimum of 20 cents of land were selected by random sampling method.

## 6.5 VARIABLES SELECTED FOR THE STUDY

### 6.5.1 Dependent Variables

Knowledge level and extent of adoption of the respondents were chosen as the dependent variables. Knowledge scale was developed to measure knowledge and an index was developed to measure the extent of adoption.

### 6.5.2 Independent Variables

Independent variables selected for the study were age, education, farming experience, farm size, occupation, social participation, extension contact, economic motivation, scientific orientation, management orientation, innovativeness, achievement motivation, mass media exposure, training undergone and risk orientation.

## 6.6 COLLECTION OF DATA

The data were collected using a pre tested interview schedule developed for the study. The collected data were coded, tabulated and analyzed statistically and then the results were interpreted accordingly.

## 6.7 RESULTS

### 6.7.1 Distribution of Coconut Farmers Based on Their Personal, Socio-Psychological and Situational Characteristics

Majority of the coconut farmers studied were old aged (53.33%), with high school level of education (55.33%), medium farming experience (41.33%), marginal farmers (98.00%), had farming alone as major occupation (38.00%), low social participation (48.67%), medium levels of extension contact (50.00%), economic motivation (62.00%), scientific orientation (68.67%), management orientation (42.67%), achievement motivation (70.00%), mass media exposure (52.67%), risk orientation (53.33%) and low in innovativeness (53.33%) and training undergone (48.00%).

### 6.7.2 Knowledge of the respondents About the Recommended Package of Practices

A greater portion (38.67%) of the respondents had medium knowledge about the recommended package of practices of coconut.

### 6.7.3 Adoption of Recommended Package of Practices of Coconut By the Farmers

Majority (45.33%) of the respondents had medium level of adoption of recommended package of practices of coconut.

### 6.7.4 Relationship Between Selected Personal, Socio Psychological and Situational Characteristics of the Coconut Farmers and Their Knowledge About Recommended Package of Practices of Coconut

There was a positive and significant relationship between education, farming experience, farm size, occupation, social participation, extension contact, economic motivation, scientific orientation, management orientation, innovativeness, achievement motivation, mass media exposure, training undergone and risk orientation of coconut farmers and their knowledge about recommended package of practices. But age alone had a positive and non-significant relationship with the dependent variable.

### 6.7.5 Relationship Between Selected Personal, Socio Psychological and situational Characteristics of the Coconut Farmers and Their Extent of Adoption of Recommended Package of Practices

The relationship was positive and significant between education, farming experience, farm size, occupation, social participation, extension contact, economic

motivation, scientific orientation, management orientation, innovativeness, 'n' ach. and training undergone nature of the coconut farmers and their extent of adoption of recommended package of practices of coconut. However there were positive but non-significant relationships between age, mass media exposure, and risk orientation and the prediction variable.

### 6.7.6 Combined Effect of All the Selected Personal, socio Psychological and Situational Characteristics on the Knowledge of the Coconut Farmers About Recommended Package of Practices of Coconut

All the fifteen selected independent variables put together explained for about 56.70 per cent variation in the knowledge of the farmers. Farm size, scientific orientation and achievement motivation had positively and significantly contributed to most of the variation in knowledge level of the farmers about recommended package of practices.

### 6.7.7 Combined Effect of All the Selected Personal, Socio Psychological and Situational Characteristics on the Extent of Adoption Recommended Package of Practices by the Coconut Farmers

All the fifteen selected independent variables put together explained for about 57.61 per cent of variation in the adoption of recommended package of practices of coconut by the farmers. Among them farm size, social participation and achievement motivation had positive and significant contribution towards the variation in the consequent variable.

### 6.7.8 Constraints Encountered by the Respondents in the Adoption of Recommended Package of Practices

Inadequate farm labour and high cost of labour were the important labour constraints mentioned by 74.67 per cent and 73.33 percent of farmers respectively. While 55.33 per cent had expressed inadequate family labour as a constraint. 26.00 per cent of the subjects rated insufficient finance with the farmers as a constraint, which was the only one in that category. Input constraints namely, non availability of hybrid seedlings, inadequate availability of inputs and lack of input availability bagged 72.66 per cent, 53.33 per cent and 25.33 per cent of respondents respectively. Lack of technical guidance, non conduct of farmers trainings frequently and non availability of extensionists for consultation were the extension constraints got mention by 28.67 per cent, 26.00 per cent and 22.00 per cent of the respondents respectively. Among marketing constraints, lack of sufficient government institutions to procure coconut and lack of agro industries to prevent fluctuation in prices and also fetch more prices for the products were the important ones put forward by 63.33 per cent of farmers each. 41.33 per cent of them rated poor market education to farmers also as a constraint under the group.

### 6.7.9 Suggestions Given by the Coconut Farmers to Overcome the Constraints

A lion's share (68.67%) of the respondents suggested to provide the required quantities of inputs exactly at the time of requirement to solve the input constraint. Other suggestions include, providing labour or labour subsidy through the Agriculture Department (63.33%), establish procurement centers for coconut under the control of the government (55.33%) impart increased number of trainings to the farmers on scientific cultivation aspects (43.13%), increase the efficiency of extension staff (36.67%), provide

agricultural loans (31.33%), take steps for effective control of Eriophid mite (30.67%), provide crop insurance facilities (29.33%), provide labour insurance facilities to all the agricultural laborers (28.00%), and provide facilities for marketing tender coconut and provide market intelligence to farmers (20.67 % each).

## 6.8 IMPLICATIONS OF THE RESEARCH STUDY

Implications of the study, documented on the outcomes of the probing, would serve as pace setters for future endeavors of farmers, researchers and extensionists. Hence an attempt is made to document the implications of the present study, mostly in the nature of suggesting some changes so as to improve the attitude, knowledge and adoption of recommended package of practices by the respondents.

6.8.1 Research results revealed that large number of respondents belonged to old age group. There is ample need for encouraging young and middle aged people to participate actively in farming activities. Extension personnel should give due consideration in selecting young and energetic farmers besides middle and old aged groups.

6.8.2 Majority of the respondents were having high school level of education. Education is of vital importance in bringing out behavioural changes. Advantages of this good education level should be exploited for imparting knowledge and skills in farming activities through non formal education in the villages.

6.8.3 A greater share of the respondents had medium farming experience. Farmers should be involved in agricultural activities at early age itself and their

experience should be increased through field visits, group discussions, demonstrations etc.

6.8.4 A lion's share of individuals were marginal farmers. They also should be given adequate recognition by extension agencies as well as finance and input agencies by implementing schemes suitable for them.

6.8.5 Even though greater number of the subjects had farming alone as their major occupation, total of the farmers with subsidiary occupations were more than the above group. This nature should be logically utilized by the extensionists in teaching them farming activities and making them to reap better yields from the field. As the majority of the respondents are dependent only on farming sufficient care should be taken by the extension personnel to transfer the needed technologies to these farmers at right time.

6.8.6 Most of the coconut farmers had low level of social participation. This trend should be changed through helping the farmers to form more discussion groups, farmers cooperatives, welfare associations etc. as social exposure will motivate in adoption of latest technologies.

6.8.7 Medium level of extension contact was prominent among the farmers. They should be inspired for more contacts with extension personnel and technology development centers through meetings, exposure visits, demonstrations etc. Extension personnel have to develop a good rapport with the farmers.

6.8.8 A good number of farmers had medium economic motivation, which should be accelerated through exposure visits, demonstrations, trainings etc., to teach better utilization of inputs, use of no cost and low cost technologies.

6.8.9 Majority of the farmers had medium level of scientific orientation. Scientific bent of mind naturally lead to acquisition of knowledge and adoption of advanced technologies. Therefore they are likely to evince keen interest to expose to different information sources and extension agencies.

6.8.10 Two fifth of the farmers had medium level of management orientation which would be improved through motivating the farmers for systemizing their planning, production and marketing activities.

6.8.11 More than fifty per cent of the farmers had low innovativeness. More youngsters and middle aged people should be attracted to the farming sector so that their eagerness and enthusiasm can be positively exploited.

6.8.12 Medium level of 'n' ach. was exhibited by a lion's share of the respondents which is a good symbol, and the extension agencies have to concentrate on further development of this character and making them to extract its fullest use. Arranging competitions and providing incentives are the best suited ways for this.

6.8.13 Majority of the farmers had low mass media exposure. Farmers should be inspired in developing the habits of utilizing mass media for gathering information on agriculture and allied activities.

6.8.14 Nearly half of the respondents had low training undergone, which might be one important reason for medium level of adoption of recommended practices by the farmers. Farmers should be imparted with adequate trainings on scientific cultivation aspects.

6.8.15 Medium level of risk orientation was exhibited by nearly fifty per cent of the respondents. They should be oriented towards scientific cultivation aspects and

risk management practices through demonstrations, trainings, exposure visits, exhibitions etc.

6.8.16 Results indicated that most of the respondents had medium level of knowledge. This condition can be improved by educating the farmers through discussions, trainings and efficient use of mass media sources.

6.8.17 Majority of the farmers were having medium level of adoption of recommended package of practices. This warrants a need on the part of the extensionists to convince the farmers about latest technologies and make them to adopt by continuous motivation through different ways.

6.8.18 The present study also revealed that the independent variables education, farming experience, farm size, occupation, social participation, extension contact, economic motivation, scientific orientation, management orientation, innovativeness, achievement motivation and training undergone nature had positive and significant relationships with knowledge and adoption of the respondents. Hence these variables should be given adequate consideration by the administrators, policy makers, extension personnel, officials etc., while improving knowledge and adoption of level of the coconut farmers.

6.8.19 The constraints and suggestions given by the coconut farmers as evident from the findings of the study also to be looked into by the administrators, policy makers, extension personnel, officials etc., in order to improve the adoption of recommended practices by the coconut farmers.

## 6.9 INK LINKS FOR FUTURE RESEARCH

Findings of the present study warrant the need for further investigations in several directions. Following suggestions are made for the use of future researchers who undertake studies in this area.

6.9.1 Present investigation was conducted in Mahe region of the Union territory of Pondicherry. Similar studies may be undertaken in other coconut growing regions of the Territory.

6.9.2 This study was confined to only one major crop namely coconut. Further studies may be carried out on other important crops of the region.

6.9.3 This investigation has considered only few selected profile characteristics in order to find out their relationship and impact on knowledge and adoption of coconut farmers. Number of other variables, which are likely to affect the dependent variables, may also be studied.

6.9.4 The devices of measurement developed for the present study appears to be appropriate and convenient. However, they need to be tested for its components consistency. Further they need to be tried on large samples and to be cross-validated with other similar measurements.

6.9.5 To have an in depth analysis of the study, some case studies may be taken up to see how far the different factors contributed for adoption of recommended coconut practices.

6.9.6 Similar studies can be repeated after a conclusive period of five years or so to assess the impact of adoption of recommended package of practices of coconut in improving the socio economic conditions of the farmers.

6.9.7 This study was conducted according to ex-post-facto research design due to usual limitations. Further studies may be taken up adopting before and after controlled experimental designs. It is also then plausible to evaluate the different components of coconut cultivation more critically.

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# APPENDIX-I

## ALL INDIA FINAL ESTIMATE OF COCONUT-2001-2002

| SL. No. | State/U.T. | Area ('ooo Ha) | Production (Million nuts) | Productivity (Nuts/Ha) |
|---|---|---|---|---|
| 1. | Andhra Pradesh | 104.0 | 1129.1 | 10857 |
| 2. | Assam | 21.1 | 163.6 | 7754 |
| 3 | Goa | 25.0 | 125.1 | 5004 |
| 4. | Karnataka | 373.7 | 1523.4 | 4007 |
| 5. | Kerala | 939.5 | 5744.0 | 6114 |
| 6. | Maharashtra | 16.8 | 193.8 | 11536 |
| 7. | Orissa | 17.3 | 142.4 | 8231 |
| 8. | Tamil Nadu | 335.8 | 3293.6 | 9808 |
| 9. | Tripura | 3.3 | 7.0 | 2121 |
| 10. | West Bengal | 25.6 | 331.6 | 12953 |
| 11. | A&N Islands | 25.2 | 89.7 | 3560 |
| 12. | Lakshadweep | 2.7 | 53.1 | 19667 |
| 13. | Pondicherry | 2.3 | 25.3 | 11000 |
| 14. | All India | 1892.3 | 12821.7 | 6776 |

(Source: Indian Coconut Journal Vol.XXXIV. No. 5 (September 2003) pp: 13)

# APPENDIX-II

## STATEMENTS USED FOR CONDUCT OF KNOWLEDGE TEST FOR DEVELOPMENT OF KNOWLEDGE SCALE

The following statements were used for conduct of pre-test for selecting the final statements for the knowledge scale.

**A. Please indicate whether following statements are 'True' or 'False'.**

| SL.No. | Statement | True | False |
|---|---|---|---|
| 1. | Coconut palms having regular bearing habit producing not less than 80 nuts per year should be selected as mother palm. | | |
| 2. | Mother palms should have an age of not less than 20 years. | | |
| 3. | Seed nuts when husked should weigh not less than 600g | | |
| 4. | Seed nuts should be collected from June to September. | | |
| 5. | Harvested nuts should be stored in partial shade for 60 days. | | |
| 6. | Seed nuts should be sown after the commencement of South- West monsoon. | | |
| 7. | Nursery should be irrigated on alternate days during summer. | | |
| 8. | Seedlings with early splitting of leaves should be selected for planting. | | |
| 9. | Seedlings should be planted during March –May. | | |
| 10. | Mulching is done for soil moisture conservation. | | |
| 11. | Organic manures should be applied in June- July. | | |
| 12. | Fertilizers should be applied in two splits. | | |
| 13. | Recommended dose of $K_2O$ is 1.2kg/ palm under good management condition. | | |
| 14. | Bud rot is a lethal disease of coconut | | |
| 15. | Eriophid mite is the most important pest of coconut in the present situation. | | |
| 16. | West Coast tall is a prominent variety of coconut. | | |

**B. Please indicate the most appropriate answer from the alternatives given under each of the following statements.**

1. Coconut palms selected, as mother palms should have at least --------number of bunches of nuts.

   a) 15 nos. b) 8 nos. c) 12 nos. ( )

2. Size of the seed nut should be

   a) Medium b) Big c) Small ( )

3. Maturity of nuts for selection as seed nuts is

   a) 11 months b) 12 months c) 9 months ( )

4. Width of the nursery bed should be

   a) 2m b) 1m c) 1.5m ( )

5. Seed nuts are sown on the raised beds at a distance of

   a) 30 cm b) 45 cm c) 20 cm ( )

6. Ungerminated seed nuts are removed from the beds after ------months of sowing

   a) 10 months b) 5 months c) 6 months ( )

7. Age of the seedlings at the time of planting

   a) 9-12 months b) 24 months c) 15 months ( )

8. Size of the pit for planting seedlings in laterite soils is

   a) 0.75 m x 0.75 m b) 1.2 m x 1.2 m c) 1m x 1 m ( )

9. Spacing for planting coconut seedlings in square system is

   a) 7 m x 7 m b) 8 m x 8 m c) 7.6 m x 7.6 m ( )

10. Irrigation requirement for grown up palms in summer season is ------ liters per palm in 4-5 days

    a) 600 to 900 b) 400 to 600 c) 1000 ( )

11. Organic manures, to be applied per matured palm per year

a) 50 kg b) 10 kg c) 15-25 kg ( )

12. For soil reclamation lime/dolomite should be applied at ----- weeks before application of chemical fertilizers

a) 1 b) 2-3 c) 5 ( )

13. Recommended dose of N and P2O5 for a palm under good management are

a) 0.5 kg and 0.32 kg b) 0.34 kg and 0.17 kg c) 1 kg and 0.5 kg ( )

14. Manure pits should be treated with Carbaryl to control

a) Red Palm weevil b) Eriophid mite c) Rhinoceros beetle ( )

15. Prophylactic spray with 1 per cent Bordeaux Mixture will help to control

a) Bud rot b) Stem bleeding c) Tanjore wilt ( )

16. Among the following, which is a hybrid?

a) Java b) Lakshaganga c) East Coast tall ( )

**C. Please fill in the blanks with correct answers.**

1. Mother palms should have -----numbers of fully opened leaves.

2. Seed nuts should have mean copra content of ------ g or more.

3. Seed beds should be prepared at ------cm height.

4. In low-lying areas seedlings should be planted on mounds of -----m height above water level.

5. Irrigation requirement of seedlings for first two years of planting is ------ liters at 4-5 days interval during summer season.

6. Burial of -----in soil in the space between two trees will help in soil moisture conservation.

7. Providing -----irrigation system will help to heavily decrease the irrigation water requirement.

8. General recommendation of N, $P_2O_5$ , and $K_2O$ for matured trees under average management condition is -------, -------- and ------ kgs respectively.

9. Recommended doze of $MgSO_4$ per palm per year is -------- g.

10. A substitute for MOP is ----------.

11. Intercultivation should be undertaken -------- times in a year.

12. Intercropping and mixed cropping are possible in plots with trees of age less than --------- years and more than ------- years

13. ----------beetle makes 'V' shaped cuts on coconut leaves.

14. ---------- weevil topples down the crown of the trees if not adequately controlled.

15. Application of ---------- at 5 kg per palm per year helps to certain extent to control stem bleeding and Tanjore wilt.

16. ---------- is the variety most suitable for tender nut purpose.

## APPENDIX-III

### STATEMENTS SELECTED FOR FINAL KNOWLEDGE SCALE

**A. Please state whether the following statements are 'True' or 'False'.**

| SL.No. | Statement | True | False |
|---|---|---|---|
| 1 | Coconut palms having regular bearing habit producing not less than 80 nuts/ year should be selected as mother palm. | | |
| 2 | Mother palm should have an age not less than 20 years | | |
| 3 | Seed nuts should be collected from June- September | | |
| 4 | Harvested nuts should be stored in partial shade for 60 days | | |
| 5 | Seedlings with early splitting of leaves should be selected for planting | | |
| 6 | Seedlings should be planted in March- May | | |
| 7 | Fertilizers should be applied in two splits | | |
| 8 | Recommended dose of $K_2O$ is 1.2 kg. per palm per year under good management condition | | |
| 9 | Eriophid mite is the most important pest of coconut in the present situation | | |

**B. Please indicate the most appropriate answer from the alternatives given under each of the following statements.**

1. Size of the seed nuts should be

   a) Small b) Big c) Medium ( )

2. Maturity of nuts for selection as seed nuts is

   a) 11 months b) 12 months c) 9 months ( )

3. Width of the nursery bed should be

   a) 2m b) 1m c) 1.5m ( )

4. Seed nuts are sown on the raised beds at a distance of

   a) 30 cm  b) 45 cm  c) 20 cm  ( )

5. Ungerminated nuts are removed from the beds after--------months of sowing

   a) 10 months  b) 5 months  c) 6 months  ( )

6. Spacing for planting coconut seedlings in square system

   a) 7m x 7m  b) 8m x 8m  c) 7.6m x 7.6m  ( )

7. Organic manures to be applied per matured palm per year

   a) 50 kg  b) 10 kg  c) 15-25 kg  ( )

8. For soil reclamation lime/ dolomite should be applied at …… weeks before application of chemical fertilizers

   a) 1  b) 2-3  c) 5  ( )

9. Recommended doses of N and P2O5 for a palm under good management are

   a) 0.5 kg and 0.32 kg  b) 0.34 kg and 0.17 kg  c) 1 kg and 0.5 kg  ( )

10. Manure pits should be treated with Carbaryl to control

    a) Red palm weevil  b) Eriophid mite  c) Rhinoceros beetle  ( )

11. Prophylactic spray with 1 per cent Bordeaux Mixture will help to control

    a) Bud rot  b) Stem bleeding  c) Tanjore wilt  ( )

**C. Please fill in the blanks with correct answers.**

1. Mother palm should have -------numbers of fully opened leaves.

2. Seed nuts should have mean copra content of -------g or more.

3 Seed beds should be prepared at -------cm height.

4. In low-lying areas seedlings should be planted on mounds of --------- m height above water level.

5. Irrigation requirement of seedlings for first two years of planting is ----liters of water at 4-5 days interval during summer season.

6. Burial of -------- in soil in the space between two trees will help in soil moisture conservation.

7. Providing ------ irrigation system will help to heavily decrease the irrigation water requirement.

8. Recommended dose of $MgSO_4$ per palm per year is ---------.

9. A substitute for MOP is ----------.

10. Intercultivation should be undertaken ---------times in a year

11. Intercropping and mixed cropping are possible in plots with trees of age less than ---------years and more than ---------- years.

12. ----------beetle makes 'V' shaped cuts on coconut leaves.

13. ----------weevil topples down the crown of the tree if not adequately controlled

14. Application of ---------- at 5 kg per palm per year helps to control stem bleeding and Tanjore wilt to certain extent.

# APPENDIX – IV

ACHARYA N.G. RANGA AGRICULTURAL UNIVERSITY
S.V.AGRICULTURAL COLLEGE, TIRUPATI

DEPARTMENT OF EXTENSION EDUCATION

## ADOPTION OF RECOMMENDED PACKAGE OF PRACTICES BY THE COCONUT FARMERS OF MAHE REGION IN UNION TERRITORY OF PONDICHERRY

## INTERVIEW SCHEDULE

Respondent No. Date:

Name of the respondent :

Address :

Name of father/ husband :

Name of the village :

## SECTION – A

## PROFILE CHARACTERISTICS OF THE RESPONDENTS

**I. Age :**

**II. Education :** Please state your education level on one of the following items applicable

a) Illiterate _____
b) Can read and write only _____
c) Primary school _____
d) Middle school _____
e) High school _____
f) Higher secondary school _____
g) Collegiate education _____

**III. Farming Experience :**_____ years

**IV. Farm Size :**_____ Acres Wet : _____ Acres

**V. Occupation :**

**VI. Social Participation :**

**A)** Please state the nature of your membership in organizations :

1) No membership in any organization :
2) Membership in one organization in the past :
3) Office bearer in one organization in the past :
4) Membership in more than one organization in the past :
5) Office bearer in more than one organization in the past :
6) Membership in one organization at present :
7) Office bearer in one organization at present :
8) Membership in more than one organization at present :
9) Office bearer in more than organization at present :

**B)** Please state how often you attend the meetings :

1) Never attend meetings :
2) Attend meetings occasionally :
3) Attend meetings very often :
4) Attend meetings regularly :

**VII. Extension Contact:** Please state your awareness and contact with the following:

| **SL .No** | **Designation** | **Awareness** | | **Frequency of Contact** | | | | |
|---|---|---|---|---|---|---|---|---|
| | | **Aware** | **Not Aware** | **Weekly Once** | **Once in Fortnight** | **Monthly Once** | **Rarely** | **Never** |
| 1 | Demonstration Assistant | | | | | | | |
| 2 | VEW | | | | | | | |
| 3 | AAO | | | | | | | |
| 4 | AO | | | | | | | |
| 5 | DDA | | | | | | | |
| 6 | JDA | | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 7 | Scientists | | | | | | | |
| 8 | NGO | | | | | | | |
| 9 | Input Agencies | | | | | | | |
| 10 | Others | | | | | | | |

**VII. Economic Motivation:** A set of statements representing economic motivation of farmers is given below. Please indicate whether you Strongly Agree (SA), Agree (A), Undecided (UD), Disagree (DA) or Strongly Disagree (SD) with each of them.

| **SL. No.** | **Statement** | **Response Categories** | | | | |
|---|---|---|---|---|---|---|
| | | **SA** | **A** | **UD** | **DA** | **SD** |
| 1 | A farmer should work towards larger yields and economic profits. | | | | | |
| 2 | The most successful farmer is one who makes maximum profit. | | | | | |
| 3 | The farmer should try any new idea, which may earn him more money. | | | | | |
| 4 | A farmer should grow cash crops to increase monetary benefits compared to growing of food crops for home consumption. | | | | | |
| 5 | It is difficult for farmers' children to make good start unless he provides them with economic assistance. | | | | | |
| 6 | A farmer must earn his living, but most important thing is life cannot be defined in economic terms. | | | | | |

**IX. Scientific Orientation:** Please state whether you Strongly Agree (SA), Agree (A), Undecided (UD), Disagree (DA) or Strongly Disagree (S.D) to each of the statements.

| SL. No. | Statement | Response Categories | | | | |
|---|---|---|---|---|---|---|
| | | SA | A | UD | DA | SD |
| 1 | New methods of farming give better results to a farmer than old methods. | | | | | |
| 2 | The way of farming by your forefathers is still the way to farm today. | | | | | |
| 3 | Even a farmer with lot of farming experience should use new methods of farming. | | | | | |
| 4 | A good farmer experiments with new ideas in farming. | | | | | |
| 5 | Though it takes time for a farmer to learn new methods in farming, it is worth the efforts. | | | | | |
| 6 | The traditional methods of farming have to be changed in order to raise the standard of living of farmers. | | | | | |

**X. Management Orientation:** Three sets of statements A, B and C representing Planning Orientation, Production Orientation and Marketing Orientation respectively are given below. Please state the degree of your Agreement (A), Undecided (UD) or Disagreement (DA) with each statement.

**A) Planning Orientation:**

| SL. No. | Statement | Response Categories | | |
|---|---|---|---|---|
| | | A | UD | DA |
| 1 | Every year one should think fresh about the varieties to be cultivated in each type of land. | | | |
| 2 | It is not necessary to make prior decisions about the varieties to be cultivated in the land. | | | |
| 3 | The amount of inputs like seeds, fertilizers and plant protection chemicals needed for raising a crop should be assessed before cultivation. | | | |
| 4 | It is not necessary to think ahead of the cost involved in raising the crop | | | |

| | | | | |
|---|---|---|---|---|
| 5 | One need not consult agricultural experts for crop planning. | | | |
| 6 | It is possible to increase the yield from farm production plans. | | | |

**B) Production Orientation:**

| SL. No | Statement | Response Categories | | |
|---|---|---|---|---|
| | | A | UD | DA |
| 1 | Timely planting of crop ensures yield. | | | |
| 2 | One should use as much fertilizers as one likes. | | | |
| 3 | Determining fertilizer dose by soil testing saves money. | | | |
| 4 | Seed rates should be adopted as recommended by the specialists. | | | |
| 5 | For timely weed control one should use suitable herbicides | | | |
| 6 | One should adopt efficient water management practices for higher yields | | | |

**C) Marketing Orientation:**

| SL. No. | Statement | Response Categories | | |
|---|---|---|---|---|
| | | A | UD | DA |
| 1 | Market news intelligence is not so useful to farmers. | | | |
| 2 | Farmer can get good price by grading his product. | | | |
| 3 | Warehouses can help the farmers to get better price for their produce. | | | |
| 4 | One should sell his produce to the nearest market irrespective of price. | | | |

| | | | | |
|---|---|---|---|---|
| 5 | One should sell his produce to the nearest shop where his relatives sell. | | | |
| 6 | One should grow those varieties, which have more market demand. | | | |

**XI. Innovativeness:** Please state your degree of agreement Yes (Yes), Undecided (UD) or Disagreement (No) for the following statements.

| **SL. No.** | **Statement** | **Response Categories** | | |
|---|---|---|---|---|
| | | **Yes** | **UD** | **No** |
| 1 | Do you want to hear new ways of farming? | | | |
| 2 | If the Agricultural Extension Worker gives a talk on improved cultivation aspects will you attend? | | | |
| 3 | If the government helps you in establishing a farm elsewhere will you accept the deal? | | | |
| 4 | Do you want a change in your life? | | | |
| 5 | A farmer should try to do farming, in the way his parents did. | | | |
| 6 | Do you want your sons to be farmers? | | | |
| 7 | It is better to enjoy today and for tomarrow takes care of itself? | | | |
| 8 | A man's future is in the hands of god. | | | |

**XI. Achievement Motivation:** Please state whether you Strongly Agree (SA), Agree (A), Undecided (UD), Disagree (DA) or Strongly Disagree (SD) with each of the following statements.

| **SL. No.** | **Statement** | **Response Categories** | | | | |
|---|---|---|---|---|---|---|
| | | **SA** | **A** | **UD** | **DA** | **SD** |
| 1 | One should work hard like a slave until he is satisfied with result. | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 2 | One should have determination and driving ambition to achieve certain things in life even if these qualities make to undergo several difficulties. | | | | | |
| 3 | When working in-group one should try to excel others in similar tasks. | | | | | |
| 4 | Work should come first even if one cannot take rest in order to achieve one's goal. | | | | | |
| 5 | Even when one's interests are in danger he should concentrate on his job and forget his obligations to others. | | | | | |
| 6 | One should set difficult goals for oneself and try to reach them. | | | | | |
| 7 | The way things are happening now a day, discourages one to work hard. | | | | | |
| 8 | It is better to content with whatever little one has than to be always struggling. | | | | | |

**XIII. Mass Media Exposure:** Please mention your possession of or exposure to mass media:

1. Possession of TV/ Radio : Yes/No
2. Subscriber to newspaper : Yes/ No
3. Subscriber to farm magazines : Yes/ No
4. Listening to radio : R/ VO/ O/ N
5. Reading newspaper : R/ VO/ O/ N
6. Reading farm magazines : R/ VO/ O/ N
7. Reading books in agriculture : R/ VO/ O/ N

R: Regular, VO: Very Often, O: Often, N: Never

**XIV. Training Undergone:** Please state the number and duration of trainings you have undergone.

| SL.No. | Training number | Duration |
|---|---|---|
| 1 | | |
| 2 | | |
| 3 | | |

**XV. Risk Orientation:** Please state whether you Agree (A) or Undecided (UD) or Disagree (DA) about each of the following statements.

| SL. No | Statement | Response Categories | | |
|---|---|---|---|---|
| | | A | UD | DA |
| 1 | A farmer should rather take more chances in making a big profit than to be content with a smaller but less risky profit. | | | |
| 2 | A farmer who is willing to take greater risk than the average farmer usually does better financially. | | | |
| 3 | It is good for a farmer to take risks when he knows his chance of success is fairly high. | | | |
| 4 | Trying entirely a new method in farming by a farmer involves risk but it is worth trying it. | | | |
| 5 | A farmer should grow more number of crops to avoid greater risks involved in growing one or two. | | | |
| 6 | It is better for a farmer not to try new farming methods unless others have used them. | | | |

## SECTION-B

## I. KNOWLEDGE OF RESPONDENTS ON RECOMMENDED PACKAGE OF PRACTICES OF COCONUT

**A. Please state whether the following statements are 'True' or 'False'.**

| SL. No. | Statement | True | False |
|---|---|---|---|
| 1 | Coconut palms having regular bearing habit producing not less than 80 nuts/ year should be selected as mother palm. | | |
| 2 | Mother palm should have an age not less than 20 years | | |
| 3 | Seed nuts should be collected from June- September | | |
| 4 | Harvested nuts should be stored in partial shade for 60 days | | |
| 5 | Seedlings with early splitting of leaves should be selected for planting | | |
| 6 | Seedlings should be planted in March- May | | |
| 7 | Fertilizers should be applied in two splits | | |
| 8 | Recommended dose of $K_2O$ is 1.2 kg. per palm per year under good management condition | | |
| 9 | Eriophid mite is the most important pest of coconut in the present situation | | |

**B. Please indicate the most appropriate answer from the alternatives given under each of the following statements.**

1. Size of the seed nuts should be

   a) Small b) Big c) Medium ( )

2. Maturity of nuts for selection as seed nuts is

   a) 11 months b) 12 months c) 9 months ( )

3. Width of the nursery bed should be

   a) 2m b) 1m c) 1.5m ( )

4. Seed nuts are sown on the raised beds at a distance of

   a) 30 cm  b) 45 cm  c) 20 cm  ( )

5. Ungerminated nuts are removed from the beds after---------months of sowing

   a) 10 months  b) 5 months  c) 6 months  ( )

6. Spacing for planting coconut seedlings in square system

   a) 7m x 7m  b) 8m x 8m  c) 7.6m x 7.6m  ( )

7. Organic manures to be applied per matured palm per year

   a) 50 kg  b) 10 kg  c) 15-25 kg

8. For soil reclamation lime/ dolomite should be applied at …… weeks before application of chemical fertilizers

   a) 1  b) 2-3  c) 5  ( )

9. Recommended doses of N and P2O5 for a palm under good management are

   a) 0.5 kg and 0.32 kg  b) 0.34 kg and 0.17 kg  c) 1 kg and 0.5 kg  ( )

10. Manure pits should be treated with Carbaryl to control

    a) Red palm weevil  b) Eriophid mite  c) Rhinoceros beetle  ( )

11. Prophylactic spray with 1 per cent Bordeaux Mixture will help to control

    a) Bud rot  b) Stem bleeding  c) Tanjore wilt  ( )

**C. Please fill in the blanks with correct answers.**

1. Mother palm should have -------numbers of fully opened leaves.

2. Seed nuts should have mean copra content of ------g or more.

3 Seed beds should be prepared at -------cm height.

4. In low-lying areas seedlings should be planted on mounds of --------- m height above water level.

5. Irrigation requirement of seedlings for first two years of planting is ----liters of water at 4-5 days interval during summer season.

6. Burial of -------- in soil in the space between two trees will help in soil moisture conservation.

7. Providing ------ irrigation system will help to heavily decrease the irrigation water requirement.

8. Recommended dose of $MgSO_4$ per palm per year is ---------.

9. A substitute for MOP is ----------.

10. Intercultivation should be undertaken ---------times in a year

11. Intercropping and mixed cropping are possible in plots with trees of age less than ----------years and more than ---------- years.

12. ----------beetle makes 'V' shaped cuts on coconut leaves.

13. ----------weevil topples down the crown of the tree if not adequately controlled

14. Application of ---------- at 5 kg per palm per year helps to control stem bleeding and Tanjore wilt to certain extent.

## II. EXTENT OF ADOPTION OF RECOMMENDED PACKAGE PRACTICES OF COCONUT

**Please indicate whether you are 'Adopting' or 'Not Adopting' the following practices.**

| SL No. | Particulars | Adopting | Not Adopting |
|---|---|---|---|
| **A. Nursery Management:** | | | |
| **I. Mother Palm Selection:** | | | |
| 1. | Trees with age of 20 years or more are selected as mother palms | | |
| 2. | Trees yielding not less than 80 nuts per year are selected | | |
| 3. | Trees having regular bearing habit are selected | | |
| 4. | Trees with more than 30 Nos. of fully opened leaves are selected | | |
| **II. Selection of Seed Nuts From Mother Palm:** | | | |
| 1. | Nuts of medium size and oblong shape | | |
| 2. | Mean copra content is 150g or more per nut | | |
| **III. Collection of Nuts From Mother Palm:** | | | |
| 1. | Nuts are collected during December to May months. | | |
| 2. | Nuts having maturity of eleven months are collected. | | |
| 3. | Harvested nuts are stored in partial shade for sixty days. | | |
| **IV. Raising and Maintenance of Nursery:** | | | |
| 1. | Nursery beds are prepared with 1.5 m width, 15 cm height and of convenient length at 75 cm spacing. | | |
| 2. | Seed nuts are sown at 30 cm x 30 cm spacing in a trench of 25-30 cm on the raised bed vertically with top portion of husk alone visible. | | |
| 3. | Ungerminated nuts are removed after six months of sowing. | | |

| | | | |
|---|---|---|---|
| **V. Selection of Seedlings:** | | | |
| 1. | Early germinated seedlings with early splitting of leaves are selected. | | |
| **B. Management in the Main field:** | | | |
| **I. Planting in the Main Field:** | | | |
| 1. | In square system seedlings are to be planted at a spacing of 7.6 m x 7.6 m. | | |
| 2. | Seedlings are planted in May in normal areas and in September in low-lying areas. | | |
| 3. | In low- lying areas seedlings are planted on mounds of 1 m height above water level. | | |
| **II. Water Management:** | | | |
| 1. | For first two years of planting irrigate with 45 liters of water per seedling at 4-5 days interval during summer. | | |
| 2. | For grown up palms irrigation with 600-900 liters of water in 4-5 days interval during summer season. | | |
| **III. Drought Management:** | | | |
| 1. | Husk burial in the soil in the space between two trees. | | |
| 2. | Providing drip irrigation system. | | |
| **IV. Organic Manuring:** | | | |
| 1 | Application of 15-25 kg manures per palm per year in June-July. | | |
| **V. Fertilizer Application:** | | | |
| 1. | Application of N, $P_2O_5$ and $K_2O$ at 500g, 320g, and 1200g per palm per year for trees under good management. | | |
| 2. | 50 % of $K_2O$ is substituted by $Na_2O$ supplied in the form of common salt. | | |

| | | | |
|---|---|---|---|
| 3. | Fertilizers are applied in two splits. | | |
| 4. | $MgSO_4$ is applied at 500g per tree per year. | | |
| **VI. Soil Reclamation:** | | | |
| 1. | Apply of lime/dolomite at one week before application of chemical fertilizers. | | |
| **VII. Weeding and Intercultivation:** | | | |
| 1. | Intercultivation is done twice in a year. | | |
| **VII. Intercropping and Mixed Cropping:** | | | |
| 1. | Adopt multitier intercropping system in plots with coconut palms of age below 8 years and above 25 years. | | |
| **IX. Pest Management:** | | | |
| 1. | Follow cultural, mechanical and chemical methods to control Eriophid mite. | | |
| 2. | Treat manure pits with Carbaryl to control rhinoceros beetle. | | |
| 3. | Follow cultural, mechanical and chemical methods to control rhinoceros beetle/ red palm weevil. | | |
| **X. Disease Management:** | | | |
| 1 | Prophylactic spray with 1% Bordeaux Mixture to control bud rot | | |
| 2. | Application of neemcake at 5kg per palm per year to control stem bleeding. | | |
| 3. | Follow chemical methods to control stem bleeding. | | |
| 4. | Maintain hygiene of trees and plot. | | |

## SECTION –C

## I. CONSTRAINTS FACED BY THE FARMERS IN ADOPTION OF RECOMMENDED PACKAGE OF PRACTICES

Following are some of the constraints generally faced by farmers. Please indicate the extent of constraint on each practice that has been either partially adopted or not adopted by you.

| SL. No. | Items | Extent of Constraint | | |
|---|---|---|---|---|
| | | More | Less | Not a Constraint |
| **I. Land Related Constraints:** | | | | |
| 1. | Suitability of land for coconut cultivation | | | |
| 2. | pH of the soil | | | |
| 3. | River bank erosion | | | |
| 4. | Any other- Flood | | | |
| **II. Labour Constraint:** | | | | |
| 1 | Inadequate family labour | | | |
| 2. | Inadequate farm labour | | | |
| 3. | High cost of labour | | | |
| 4. | Unskilled labour | | | |
| 5. | Scarcity of labour during peak period | | | |
| 6. | Any others | | | |
| **III. Constraints Related to Agricultural Finance:** | | | | |
| 1. | Insufficient finance with farmers | | | |
| 2. | Inadequate institutional finance | | | |

| | | | | |
|---|---|---|---|---|
| 3. | Cumbersome institutional finance procedure | | | |
| 4. | Delay in institutional finance | | | |
| 5. | High rate of interest by institutions | | | |
| 6. | High rate of interest by money lenders | | | |
| 7. | Untimely institutional financing | | | |
| 8. | Less time for repayment of loans | | | |
| 9. | Lack of knowledge on institutional financing | | | |
| 10. | Any others | | | |
| **IV. Input Constraints:** | | | | |
| 1. | Inadequate input availability | | | |
| 2. | Lack of input availability | | | |
| 3. | High cost of inputs | | | |
| 4. | Lack of sufficient knowledge on inputs | | | |
| 5. | Poor quality of inputs | | | |
| 6. | Spurious inputs (adulterated) | | | |
| 7. | Non availability of hybrid seedlings | | | |
| 8. | Any others | | | |
| **V.Technical Constraints:** | | | | |
| 1. | Lack of knowledge | | | |
| 2. | Lack of skills | | | |
| 3. | Practice is costly | | | |
| 4. | Practice is not practicable | | | |
| 5. | Not convinced of practice | | | |
| 6. | Unaware of practice | | | |

| | | | | |
|---|---|---|---|---|
| 7. | Lack of training in practice | | | |
| 8. | Practice is complex and complicated | | | |
| 9. | Visibility of results in the field is poor | | | |
| 10. | Any other | | | |
| **VI. Extension Constraints:** | | | | |
| 1. | Demonstration Assistant/ VLW is not available for consultation | | | |
| 2. | Lack of technical guidance | | | |
| 3. | Farmers trainings not conducted | | | |
| 4. | Emphasize on low cost and no cost technologies is not made aware by extension staff | | | |
| 5. | Insufficient extension activities like demonstrations, farmers group discussions, kisan melas etc. by extension agency | | | |
| 6. | Extension agency is not technologically competent | | | |
| 7. | Untimely visit of extension staff | | | |
| 8. | Any other | | | |
| **VII. Marketing Constraints:** | | | | |
| 1. | Lack of remunerative price | | | |
| 2. | Lack of procurement facilities in the area | | | |
| 3. | Middlemen exploitation of farmers | | | |
| 4. | Lack of sufficient government institutions to purchase coconuts | | | |
| 5. | Markets are located at far away places and hence more amounts has to be incurred on transportation | | | |

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|---|---|---|---|---|
| 6. | Inadequate transport facilities | | | |
| 7. | Lack of proper processing and storage facilities | | | |
| 8. | Lack of agro industries to avoid fluctuation in prices and also fetch more prices for the products | | | |
| 9. | Poor market education to the farmers | | | |
| 10. | Any other | | | |

## II. SUGGESTIONS TO OVERCOME THE CONSTRAINTS

Please give your suggestions to overcome the constraints.

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3.
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