CHAPTER-V

SUMMARY, FINDINGS, SUGGESTIONS AND CONCLUSION

5.1 SUMMARY

India is basically an agrarian society where sole dependence has been on agriculture since time immemorial\(^1\). In the olden days, the agricultural produce was fundamentally bartered naturally where farmers exchanged goods for goods and also against services.\(^2\) Gradually the scenario changed with the changing times and agriculture produce began being sold with an element of commercial value.

Turmeric is a tropical perennial plant, native to India and Indonesia and is cultivated throughout the tropics around the world. It is known as the ‘Golden Spice of Life’ and is one of the most essential spices used as an important ingredient in cooking all over the world. India is the largest producer and consumer of Turmeric in the world, and India also has the largest share in world exports. The top export destinations of Indian Turmeric are the U.A.E., Bangladesh, Malaysia, Iran, the U.K. and the U.S.A. Exports of turmeric have risen significantly since 2011 due to efforts taken by the Spice Board of India on quality control. Many of the developed countries like the USA, the UK and Japan are taking much interest in purchasing Indian turmeric due to high degree of quality consciousness followed by the Indian exporters.

This study concentrates to examine the problems faced by the turmeric producers and the prospects with regard to maintaining their livelihood, prospects in cultivating turmeric, market potential for the small farmers, support system and strategies adopted and finally, the challenges in marketing the turmeric products by the small farmers in Erode district. However, there are lots of studies that have investigated the farmers’ perception, whereas the present study concentrates specifically on small farmers who are

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the land owners cultivating turmeric in more than one acre of land and less than 5 acres of land in and around Erode district.

The sustainability of the small farmers’ livelihood was discussed with regard to generation of returns maintaining small land holdings, growth achieved with minimal investment, minimal labour and family support system that helps in eradicating the labour shortage, plenty of enterprise opportunities to increase income, achievement of supplementary income whenever intercropping is done, plenty of opportunity for women, and finally, maintenance of resources and transportation facilities and if they are adequate to successfully carrying out the business and also to make more profit. Prospect for the product based on pricing is found to be uniform and the requirement for the product because of its medicinal values is high. Sustainability of the crop after cultivation for storing after processing and finally low cost factors during production was also considered in the study. The market potential and technical support for the product is quite high and that helps the small farmers to successfully market their produce with sustainable strategies. The technical support, training and development through government initiatives, institutions, cooperative societies and NGOs also help the small farmers to persist in the agricultural business.

The barriers in cultivation of turmeric are adopting traditional method of irrigation, inadequate action plan, and migration of agricultural labours, improper maintenance, inadequate water supply, problems due to natural disaster, low irrigation potential and the economic situation of the country. Some of the market challenges faced by the farmers are supply chain and linkages, certification issues, lack of women representation, quality of the plant material, access to financial services and finally, enterprise sustainability. Hence it is necessary to understand, whether the livelihood for the small farmers is favourable, whether there are any prospects to cultivate turmeric by the small farmers in Erode district, whether the market potential helps the small farmers to achieve success and to sustain in the agriculture, whether the small farmers are satisfied with the technical support, training and skill development provided by the policy makers, whether the problems have any significant impact among the small farmers
during turmeric cultivation and finally, what are the challenges that the small farmers face to market their product in the study area.

The objectives are to examine the demographic profile of the small farmers involved in cultivation of turmeric in the Erode district, to identify the livelihood of the small farmers, prospects in turmeric cultivation and market potential for their product, to evaluate the problems in turmeric cultivation and challenges in turmeric market, to find out the level of satisfaction towards technical support, training and skill development provided by the policy makers, to assess and build a model to analyze the barriers and prospects perceived by the small farmers in the agricultural sector and finally, to contribute suggestions for policy implications.

Research in common parlance refers to the search of knowledge. The sources of data in our study included both primary as well as secondary data. Questionnaires were used for the primary data collection, whereas secondary data collection was made based on the information provided by the Agricultural Development Sector, journals, websites, and other published sources. The population was classified only with small farmers and the survey was conducted among the small farmers engaged in cultivation and promotion of Turmeric Products in Erode district, Tamil Nadu. The sample size of the study is 560 small farmers. The technique used for the research is Non-Probability sampling. However, considering the accessibility and availability of small farmers, keeping in mind, all the zones of the districts such as North, South, East and West zones, convenient sampling technique was selected for the study. Also, the small farmers who are engaged in turmeric cultivation and promotion having a minimum of one acre of land holdings and with a maximum of 5 acres of land (not exceeding) in all the zones of Erode district are considered for the survey. The researcher has identified a minimum of 700 small farmers from each zone and was able to circulate the questionnaires to two thousand and two hundred and forty small farmers for data collection. Out of the 2240 responses the relevance and perfection of data that can be included for the study confined after scrutiny was limited to 560 small farmers which is about 25% of the total responses received. The received responses of 25%, out of the total responses received, was also use to classify the respondents zone wise as producers and retailers respectively.
The objectives framed for the present study formed the basis of the identification of the relevant statistical techniques. Cronbach’s Alpha has been used to test the reliability of the constructs. The tools used are Percentage Analysis, Weighted Mean, Garrett Ranking Technique, Mean Score Analysis, One-Way ANOVA, Chi-Square Test, Factor Analysis and Structural Equation Modeling.

5.2 FINDINGS OF THE STUDY

5.2.1 DEMOGRAPHICS
- Most (49.1%) of the respondents are living in rural areas.
- A Maximum of 42% of the small farmers belonged to the age group between 30 and 40 years.
- Nearly half (47.7%) of the small farmers have studied up to primary / secondary level.
- A maximum of 43.2% of the respondents are involved in only in turmeric cultivation.
- Most (61.3%) of the respondents have 4 to 6 members in their family.
- A maximum of 29.8% of the small farmers are having yearly income between Rs.200001 and Rs.300000.
- Majority (76.3%) of the small farmers are having more than one earning member in their family.
- A maximum of 32.5% of the small farmers indicated that they have less than 5 years of experience in turmeric cultivation.
- A maximum of 27.5% of the small farmers depend on drip irrigation system.
- A maximum of 43.8% of the respondents possess 1 to 2 acres of land for their turmeric cultivation.
5.2.2 DISTRIBUTION OF DIMENSIONS

- It is evident that most of the respondents had got proper pricing for their produce while a few of the respondents were not able to get the expected pricing. When it comes to better harvest without tilling, it is found that least number of respondents had strongly disagreed to the same. Most of the respondents strongly agreed that the maintenance of moisture required for the plant, the prospects lies in medicinal and domestic importance, suitable soil and whether condition and high yield / growth and profitability achieved for their produces, while, very few of the respondents had disagreed to the statements. It is also found that cash crops and mixed cropping pattern is adopted to generate more revenue from turmeric cultivation and most of the farmers adopt these methods, while the farmers do long-term storage after processing to sell the products in the market when there is high demand and most of the small farmers feel easy to market their products and finally, most of them accept that they spend very less to achieve plant production while a few of the respondents had different opinion.

- It is evident that most of the respondents agree that the land area is sufficient enough for profitable cultivation, while their cultivation and growth is achieved without excessive investment, minimal inputs of cash, labour and land. Further the turmeric farming is suitable for their small farm production and also supports their family employment and helps income generation as well as supplementary income through inter-cropping. Women get plenty of opportunity to earn, while organic farming fetches more profit through less investment, minimal maintenance and finally, the process of transportation is good to promote their products in the market, whereas some of the small farmers disagree to some of the livelihood factors.

- It is understood the prime factors related to technical support, training and skill development reveal that most of the respondents are satisfied with the aspects such as support for good personal and product-handling hygiene, training to apply fertilizers and pesticides, knowledge about the environmental risks associated during use of pests, technical support for conventional and organic cultivation, government support
through funding for agricultural development, provision of staff to offer technical advice and skill development training, adequate provision of infrastructure like water, electricity, transport and communication systems, support system to assess the crop maturity and minimizing wastage, skills in identifying quality grading, reducing soil erosion and pollution of waterways and finally, training to minimize accidents during use of chemicals, whereas few of the respondents are dissatisfied with a few of the aspects related to Technical Support, Training and Skill Development.

5.2.3 WEIGHTED MEAN

- It is inferred that the least perception has been given by the small farmers towards “not getting proper pricing for their turmeric produce”, “cash crop and mixed cropping adoption”, “not easy to market the product low level of medicinal and domestic importance” and finally, “cost of plant product” is also not under the expected levels.

- It is inferred that the least perception was based on “less opportunity for women as perceived by the small farmers”, “inputs of cash, labour and land is not up to the expectations” and finally “less opportunity to grow organic turmeric to achieve higher profits” are found to be the disadvantageous factors perceived by the small farmers for their livelihood aspects.

- It is inferred that the opinion of the small farmers towards Market Potential was ranked least towards “reducing number of links between buyers and small farmers gain better price”, “test planting of other crops during non-seasonal cultivation of turmeric”, “marketing channels supports in promoting the products” which are the few factors considered by the small farmers to be improved to achieve success and also to maximize the sustainable growth and market potential to compete in the turmeric market.

- It is inferred that the least rating of the small farmers towards Satisfaction on Technical Support, Training and Skill Development such as “support for good personal and product-handling hygiene”, “support system to assess the crop
maturity and minimizing wastage”, “fair skills in identifying quality grading” and finally, “provision of staff to offer technical advice and skill development training” that needed improvement to achieve more success in the Turmeric Cultivation and Promotion.

➢ It is inferred that the opinion of the small farmers towards Barriers in Turmeric Cultivation was highly rated towards “inadequate maintenance of water level” followed by the “demand dip in export market”, “low irrigation potential”, “due to unseasonal rains” and “inadequate agricultural action plans” which are the highest barriers rated by the small farmers in Erode district.

➢ It is inferred that the opinion of the small farmers towards Market Challenges in turmeric promotion was highly rated towards “lack of representation for the women in the group despite their population” followed by “certification of product quality and safety” and the “low level of enterprise sustainability due to less access to financial services” which are few factors considered as market challenges by the small farmers in promotion of turmeric products in Erode District.

5.2.4 MEAN SCORE: PROSPECTS

➢ It is clear that the small farmers living in rural areas have high level opinion towards prospects for Turmeric cultivation rather than the respondents who are living in Semi-Urban and Urban Areas. It is obvious that the soil sustainability and maintenance of moisture is highly effective in rural areas than the urban areas. When testing the probability between the variables “Place of residence of the small farmers” and “Prospects for Turmeric cultivation”, shows that there is a significant association between the variables and therefore the hypothesis between the two variables holds good and the null hypothesis is rejected.

➢ It is understood that the Small Farmers belonging to the age group between 30 and 40 years had high level of opinion towards Prospects for Turmeric cultivation rather than the respondents are in the other age categories. When testing the
probability between the variables “Age of the small farmers and “Prospects for Turmeric cultivation”, shows that there is a significant association between the two variables and the hypothesis between the two variables holds good. Therefore, the null hypothesis is rejected.

- It is evident that the Small Farmers having qualified with Primary / Secondary Levels had high level of opinion towards Prospects for Turmeric cultivation rather than the respondents having other qualification. It is clear that the product importance, knowledge of the weather condition, pattern of cropping and storage process have vital knowledge base to achieve the prospects for turmeric cultivation. When testing the probability between the variables “Educational Qualification of the small farmers and Prospects for Turmeric cultivation” shows that there is a significant association between variables and therefore hypothesis between the two variables holds good. Therefore, the null hypothesis is rejected.

- It is found that the Small Farmers engaged only in Turmeric Cultivation have high level of opinion towards Prospects for Turmeric cultivation rather than the respondents engaged in other prime occupations. It is also important to note that the pattern of cropping, better harvesting and maintenance of moisture is only possible for the small farmers who are better involved in the trade of turmeric cultivation to achieve the prospects. When testing the probability between the variables “Prime Source of Occupation of the small farmers” and “Prospects for Turmeric cultivation”, it shows that there is a significant association between the variables and therefore hypothesis between the two variables holds good. Therefore, the null hypothesis is rejected.

- It is observed that the Small Farmers having income between Rs.300001 and 400000 have high level of opinion towards Prospects for Turmeric cultivation rather than the respondents having other level of incomes. It is understood that the prospect is achieved based on growth and profitability with proper pricing, easy market reach, low cost of production that are the highly influencing aspects of small farmers during turmeric cultivation. When testing the probability
between the variables “Economic Status of the small farmers” and “Prospects for Turmeric cultivation”, shows that there is a significant association between the variables and the hypothesis between the two variables holds good. Therefore, the null hypothesis is rejected.

➢ It is inferred that the Small Farmers having experience from 2 to 4 years had high level of opinion towards Prospects for Turmeric cultivation rather than the respondents having experience less than 1 year. More the experience helps in understanding the importance of the product, weather condition, maintenance, soil sustainability and cropping pattern, storage pattern and process that will led to achieve the prospects of turmeric cultivation among small farmers. When testing the probability between the variables “Experience of the small farmers” and “Prospects for Turmeric cultivation”, it shows that there is a significant association between the two variables and the hypothesis between the two variables holds good. Therefore, the null hypothesis is rejected.

➢ It is understood that the Small Farmers using Bored well Irrigation had high level of opinion towards prospects for turmeric cultivation rather than the small farmers adopting different irrigational methods. To maintain the adequacy in maintenance of moisture the source of irrigation plays very important role to achieve the expected prospects during turmeric cultivation by the small farmers. When testing the probability between the variables “Source of Irrigation of the small farmers” and “Prospects for Turmeric Cultivation”, shows that there is a significant association between the variables and the hypothesis between the two variables holds good. Therefore, the null hypothesis is rejected.

➢ It is found that the Small Farmers having 1 to 2 acres of land for turmeric cultivation have high level of opinion towards Prospects for Turmeric cultivation rather than the respondents using different irrigational methods. It is understood that land the soil sustainability and pattern of cropping is highly maintained based on the acreage of land available with the farmers that have prospective impact in turmeric cultivation among small farmers in Erode district. When testing the
probability between the variables “Acreage of Land for Turmeric Cultivation among the small farmers” and “Prospects for Turmeric cultivation”, it shows that there is a significant association between the variables and the hypothesis between the two variables holds good. Therefore, the null hypothesis is rejected.

5.2.5 ANOVA

- It is concluded that the small farmers in the age between 51 and 60 years were found to have perceived higher level of Prospects of Turmeric Cultivation and the respondents who are in the age between 31 and 40 years stated more livelihood for their turmeric cultivation. Therefore, the null hypothesis is rejected.

- It is concluded that the small farmers having graduation in agricultural sciences had perceived highly towards aspects such as Prospects for turmeric cultivation, Livelihood in turmeric cultivation and level of Market Potential for their Turmeric Products. Therefore, the null hypothesis is rejected.

- It is concluded that the small farmers engaged in agri-promotion and turmeric marketing and cultivation had perceived higher level of barriers for their Turmeric cultivation and promotion. Therefore, the null hypothesis is rejected.

- It is concluded that the small farmers having income between Rs.30001 and Rs.400000 had perceived higher level of Prospects and Livelihood when compared with the prospects and barriers in Turmeric cultivation and promotion. Therefore, the null hypothesis is rejected.

- It is concluded that the small farmers falling in the experience category between 2 and 4 years had perceived higher level of prospects, livelihood and market potential when compared with the Prospects and Barriers for Turmeric cultivation and promotion and the null hypothesis is rejected.

- It is concluded that the small farmers having 3 to 4 acres of land for turmeric cultivation had perceived higher level of Prospects, Livelihood and Market Potential in Turmeric cultivation and promotion. Therefore, the null hypothesis is rejected.
5.2.6 SUMMARY OF RESULTS: FACTOR ANALYSIS

Prospects

➢ To sum up, the KMO Barlett values towards Prospects for Turmeric Cultivation was 0.883 which is found to be adequate enough to further conduct the factor analysis. Further, three components were extracted through PCA method towards Prospects for Turmeric Products in which the Rotation converged in 9 iterations. The cumulative majority (46.273%) was achieved by the First Component and the overall cumulative per cent was found to be 69.852%. The reliability measured using Cronbach’s alpha was found to be high at 0.847.

Livelihood

➢ With respect to Livelihood of the Farmers towards Turmeric Cultivation shows the KMO=0.846 achieved the sampling adequacy to conduct factor analysis. Three components were extracted through PCA method towards Livelihood of the Farmers towards Turmeric Cultivation from which the rotation was converged in 4 iterations. The cumulative majority (46.273%) was achieved by the First Component and the overall cumulative per cent was found to be 69.852%. The reliability measured using Cronbach’s alpha was found to be high at 0.847.

Market Potential

➢ With respect to Market Potential perceived by the Small Farmers Turmeric Products shows the KMO=0.882 achieved the sampling adequacy to conduct factor analysis. Two components were extracted through PCA method towards Market Potential from which the rotation was converged in 3 iterations. The cumulative majority (39.172%) was achieved by the First Component and the overall cumulative per cent was found to be 58.574%. The reliability measured using Cronbach’s alpha was found to be high at 0.860.

Satisfaction

➢ With respect to Satisfaction perceived by the Small Farmers for Turmeric Support shows the KMO=0.872 achieved the sampling adequacy to conduct factor analysis. Two components were extracted through PCA method towards
Satisfaction from which the rotation was converged in 3 iterations. The cumulative majority (44.918%) was achieved by the First Component and the overall cumulative per cent was found to be 57.961%. The reliability measured using Cronbach’s alpha was found to be high at 0.833.

**Barriers**
- With respect to Barriers faced by the Small Farmers in Turmeric Cultivation shows the KMO=0.754 achieved the sampling adequacy to conduct factor analysis. Four components were extracted through PCA method towards Barriers from which the rotation was converged in 7 iterations. The cumulative majority (47.309%) was achieved by the first two components and the overall cumulative percent was found to be 65.204%. The reliability measured using Cronbach’s alpha was found to be high at 0.816.

**Market Challenges**
- Finally, the Market Challenges faced by the Small Farmers for their Turmeric Products shows the KMO=0.828 achieved the sampling adequacy to conduct factor analysis. Two components were extracted through PCA method towards Market Challenges from which the rotation was converged in 3 iterations. The cumulative majority (47.989%) was achieved by the first components and the overall cumulative percent was found to be 60.696%. The reliability measured using Cronbach’s alpha was found to be high at 0.841.

**5.2.7 MULTIPLE REGRESSION**
- It is evident that even though all the five variables were considered for predicting the level of impact for Turmeric Cultivation and Promotion in Erode district opined by the small farmers compared to predict the Market Potential which shows that the prediction of Prospects, (t=12.295, Sig.0.000) followed by Livelihood, (t=11.001, Sig.0.000), and finally, Market Challenges (t=15.133, Sig.0.000) which are found to be significant at 1% level. Therefore, it is concluded that these determinants had significantly contributed in achieving the Market Potential for Turmeric Cultivation and Promotion as perceived by the Small Farmers in Erode district. Whereas, there is
no significant relationship between Barriers and Market Potential which is considered to be the positive factor where the level of impact of the barriers have not influenced the market potential for turmeric products and finally, the level of satisfaction and market potential for turmeric products reveals insignificant relationship.

5.2.8 MODEL MEASUREING MARKET POTENTIAL FOR TURMERIC PRODUCTS

Overall, three the hypotheses were associated and two hypotheses were not associated after conducting the data analysis using Structural Equation Modeling. The results reveal that there are significant positive effect among the Livelihood and Market Potential for Turmeric Products, followed by Prospects and Market Potential for Turmeric Products and finally, Market Challenges and Market Potential for Turmeric Products had significant influence as opined by the small farmers in Erode district towards Cultivation and Promotion of Turmeric Products. Therefore, it is assumed that the level of barriers have no significant impact on all these factors except the Level of Satisfaction towards support, training and skill development as perceived by the farmers considered to be the major barrier and even though market challenges exists in the turmeric promotion there is more prospects for turmeric cultivation that helps the livelihood of the small farmers in the Turmeric cultivation in Erode district.

5.3 DISCUSSIONS

The ranking based on all the ten statements representing all the determinants perceived by the small farmers in turmeric cultivation and promotions were found to have above the average of 3.00.

5.3.1 Prospects

The small farmers perceived low with respect to certain aspects of prospects for turmeric cultivation such as “Proper Pricing for the produce”, “Cash crop & Mixed cropping”, “easy to market” and finally the “Medicinal and domestic importance” and “Low cost of plant production” were needed much attention. The results of the factor analysis towards prospects for turmeric cultivation among small farmers in Erode district
confirms the low loadings of three factors “Proper Pricing for the produce”, “Cash crop & Mixed cropping”, and “easy to market” their produce were needed immediate attention to improve the prospects of the small farmers in Erode district. As far as the probability when comparing the demographic variables with the prospects for turmeric cultivation among small farmers in Erode district it is evident that there is significant relationship with all the demographic variables such as Place of Residence, Age, Educational Qualification, Prime Source of Occupation, Economic Status, Experience, Source of Irrigation and Acreage of Turmeric Cultivation that have significant positive impact on the prospects for turmeric cultivation by the small farmers in Erode district.

- It is evident that the small farmers living in rural areas have highly perceived the prospects for turmeric cultivation such as soil sustainability and maintenance of moisture is highly effective in rural areas than the urban or semi-urban areas.

- The young aged farmers are more actively participating in cultivation and promoting the turmeric products in the market. While the small farmers having studied up to Primary / Secondary Levels had perceived highly towards the product importance, knowledge of the weather condition, pattern of cropping and storage process that shows their vital knowledge base to achieve the prospects for turmeric cultivation.

- The small farmers engaged only in Turmeric Cultivation had perceived high prospective this is possible only due to their cropping pattern, better harvesting and maintenance of moisture and their determined involvement helps to achieve the prospective situation in turmeric cultivation.

- It is understood that the Small Farmers having income between Rs.300001 and 400000 have highly perceived towards Prospects based on their growth and profitability with proper pricing, easy market reach, low cost of production that are the highly influencing aspects of small farmers in turmeric cultivation.
It is clear that the small farmers having more experience had highly perceived towards Prospects which is achieved by understanding the importance of the product, weather condition, maintenance, soil sustainability and cropping pattern, storage pattern and process that will led to achieve the prospects of turmeric cultivation among small farmers.

It is observed that the small farmers using bored well for irrigation had highly perceived towards prospects for turmeric cultivation achieved based on the adequacy in maintenance of moisture the source of irrigation which plays predictable role to achieve the expected prospects during turmeric cultivation by the small farmers.

Finally, the small farmers having 1 to 2 acres of land for turmeric cultivation have highly perceived towards prospects that are land the soil sustainability and pattern of cropping is highly maintained based on the acreage of land available with the farmers that helps to achieve the prospective results in turmeric cultivation among small farmers in Erode district.

While measuring the analysis of variance between the demographic variables and prospects for turmeric cultivation, there is significant variance achieved with most of the variables when compared to find the level of significance and prospects for turmeric cultivation. When taking the sub-categories of the demographic variables such as age in which the respondents who belong to the age between 51 and 60 years perceived highly towards prospects, followed by educational qualification in which the respondents qualified with graduation in agricultural sciences had significantly varied from other categories, from the yearly income variable the small farmers who are having income more than Rs.40000 had perceived significantly towards, the small farmers experience level revealed significantly variance who have more experience i.e. 10 to 15 years perceived highly towards prospects and finally, the small farmers holding 3 to 4 acres of land had highly perceived the prospects for turmeric cultivation in Erode District. The only category insignificant in the demographic variable is found to be prime source of
occupation that shows statistical insignificance towards prospects for turmeric cultivation.

5.3.2 Livelihood

It is observed from the study that the least perception was achieved by the small farmers towards “turmeric farming is suitable for my small farm production”, “land area is sufficient enough for profitable cultivation” and finally, “less opportunity to grow organic turmeric to achieve higher profits” which are not found to be meritorious based on the results of the analysis. This is in line with the factor analysis that have low loading for all the above mentioned factors needed immediate attention to improve the livelihood aspects of the small farmers involved in turmeric cultivation.

- When considering the analysis of variance based on the demographic variables and the livelihood factors based on age which showed significant variance based on small farmers belong to the age between 31 and 40 years, followed by the respondents who are qualified with graduation in agricultural science had perceived highly towards livelihood aspects, further, the economic status of the small farmers having yearly income above Rs.40000 had highly perceived towards livelihood, while the small farmers having experience between 10 and 15 years perceived highly towards livelihood and finally the small farmers who possess 3 to 4 acres of land had significantly varied in the opinion towards livelihood aspects in turmeric cultivation. Whereas, there is no significant variance between the prime source of occupation variable and livelihood aspects in turmeric cultivation.

5.3.3 Market Potential

It is understood that the market potential as perceived by the small farmers was very low with respect to “reducing number of links between buyers and small farmers gain better price”, “test planting of other crops during non-seasonal cultivation of turmeric”, “marketing channels supports in promoting the products” that are few as aspects of constraints in market potential revealed by the small farmers. It is also evident from the factor analysis that all these factors were found to have low loading that needed
to be improved to enhance the market potential of the farmers to sustain in the turmeric market.

- The analysis measures the significant variance between demographic variables and market potential which shows that the small farmers who are qualified with graduation in agricultural sciences had highly perceived the market potential for turmeric cultivation and promotion, while the small farmers having 10 to 15 years experience had highly perceived the market potential and finally, the small farmers holding 3 to 4 acres of land also had highly perceived the market potential to cultivate and promote their produces. Whereas, the other demographic variables had no significant variance with the market potential as perceived by the small farmers.

- Market potential has been taken as the dependent factor to measure the significant relationship with the other five dimensions which were highly correlated \((r=0.853)\) and predicts 72.8% of positive contribution from all the factors to achieve the market potential of the small farmers in turmeric cultivation and promotional aspects. However, the major contributing factors were found to be Prospects, Livelihood and finally Least Challenges faced by the small farmers in the Turmeric market were found to be highly significant.

- When comparing the prospects for turmeric cultivation to find the impact on market potential there is a no significant impact after entering moderation effect (barriers) and it is concluded that there is no significant relationship between “prospects and barrier”, “barriers and Market Potential” and there is a positive significant relationship between prospects and market potential that shows scope for cultivation and promotion of turmeric products to sustain in the turmeric market by the small farmers in Erode district.

- When comparing the livelihood aspects to find the impact on market potential there is a significant impact after entering moderation effect (barriers) and it is concluded that there is no significant relationship between “livelihood and
barrier”, “barriers and Market Potential” and there is a positive significant relationship between livelihood and market potential that shows scope for cultivation and promotion of turmeric products to sustain in the turmeric market by the small farmers in Erode district.

- When comparing the challenges to find the impact on market potential there is a significant impact after entering moderation effect (barriers) and it is concluded that there is no significant relationship between “market challenges and barriers”, “barriers and Market Potential” whereas, there is a significant relationship between market challenges and market potential which reveals even though the market challenges for small farmers in turmeric cultivation and promotion in Erode district is high the market potential had created sustainable situation for small farmers in turmeric cultivation and promotion in Erode district.

5.3.4 Satisfaction

When measuring the satisfaction towards training and support to develop skills in turmeric cultivation and promotion the low rating of the small farmers was on few statements that are “support for good personal and product-handling hygiene”, “support system to assess the crop maturity and minimizing wastage”, “fair skills in identifying quality grading” and “provision of staff to offer technical advice and skill development training” that needed improvement to achieve more success in the Turmeric cultivation.

- When considering the level of satisfaction to find the significant variance with the demographic variables which shows none of the independent variables had significantly varied with respect to the perception of the small farmers towards provision of satisfactory support with respect to technical aspects, training and skill development activities which were found to have no significance. Therefore, it is recommended that immediate provision of technical support, training and skill development plans to encourage the cultivation of turmeric crop in Erode district.
5.3.5 Barriers

The opinion of the small farmers towards Barriers in Turmeric Cultivation was highly rated towards “inadequate maintenance of water level” followed by the “demand dip in export market”, “low irrigation potential”, “due to unseasonal rains” and “inadequate agricultural action plans” which are the highest barriers rated by the small farmers in Erode district. It is also evident from the factor analysis that all these factors were found to have considered to be barriers that needed to be reduced to improve the small farmers to sustainability in turmeric cultivation.

- When considering the barriers most of the small farmers had no significant opinion when considering their demographic variables except the prime source of occupation which shows that the small farmers who are engaged in agri-promotion, marketing and turmeric cultivation had perceived significantly towards barriers faced during turmeric cultivation. Therefore, on a positive side of the barriers construct reveals least difference of opinion among the small farmers which helps the small farmers to march further to achieve their expected goals in turmeric cultivation.

5.3.6 Market Challenges

It is evident that the market challenges perceived by the small farmers rated highly towards “lack of representation for the women in the group despite their population” followed by “certification of product quality and safety” and the “low level of enterprise sustainability due to less access to financial services” which are few challenges considered by the small farmers during turmeric cultivation and promotion in Erode District. It is also evident from the factor analysis that all these factors were found to have considered to be barriers that needed to be reduced to improve the small farmers to sustainability in turmeric cultivation.

- When considering the barriers most of the small farmers had no significant opinion when considering their demographic variables which were found to be insignificant. On a positive side of the market are the challenges that reveal least
difference of opinion among the small farmers which will help them to achieve estimated results in turmeric cultivation.

5.3.7 SEM Model

- Overall, three hypotheses were associated and two hypotheses were not associated after conducting the data analysis using Structural Equation Modeling. The results reveal that there are significant positive effect among the Livelihood and Market Potential for Turmeric cultivation followed by Prospects and Market Potential and finally, Market Challenges and Market Potential had significant influenced the small farmers during cultivation and promotion of turmeric crops in Erode district.

- It is evident that the level of barriers have no significant impact on all these factors except the Level of Satisfaction towards support, training and skill development as perceived by the farmers as a major barrier and even though market challenges exist in the turmeric promotion, there is more prospects for turmeric cultivation that helps the livelihood of the small farmers to achieve the yield and promote their produce by the small farmers in Erode district.

5.4 SUGGESTIONS AND RECOMMENDATIONS

- It is recommended that some of the small farmers indicated improvement is needed to achieve the expected prospects if they can get proper pricing for their produce. Further adopting the cash crop and mixed-cropping pattern was found to be little active and there is a need for much more knowledge base and it is felt that producers of the small farmers should be easily promoted in the market. Turmeric has a potential of medicinal values and this aspect has more domestic importance and encashing on this aspect can fetch more market in the international arena and this need to be channelized properly to realize foreign revenue by the small farmers. Finally, the cost of plant and production need to be reduced and this reduction will help the small farmers to achieve the prospects in turmeric market by the small farmers.

- It is recommended that to improve the livelihood of the small farmers, to satisfy them based on the limited resources available, the small farmers should be encouraged to
produce turmeric products. It is also recommended to help the small farmers to achieve the sufficient profits with their limited land resources and motivate them to produce organic turmeric that can fetch higher profits in the domestic and international markets.

➢ To improve the market potential of the small farmers the links between buyers and small farmers need to be highly established to gain better price for their produces. The small farmers shall also be encouraged to test cultivation of other crops when there is no season for turmeric cultivation. Wide level of marketing channels shall be exclusively deputed to promote the products. These are some of the prime factors that need to be improved in achieving the market potential by the small farmers.

➢ The satisfaction aspects have no statistical significance with most of the compared measures based on the perception of the small farmers. Therefore, it is recommended that there is a need for immediate attention by the policy makers to improve the level of satisfaction with respect to skill development, technical support and training aspects like improving the personal and product handling hygiene, supporting to understand the crop maturity and minimize wastage during turmeric cultivation, identifying and improving the skill sets in classifying the quality grading which are the prime factors expected to be improved to achieve higher level of yield and revenue among the small farmers in Erode district.

➢ The barriers faced by the small farmers were found to be smaller in number. However, it is recommended that few of the aspects require attention by the policy makers. The following factors like providing adequate water resources to achieve consistency in turmeric cultivation, enhance the demand in export market to automatically fetch more profitability for the small farmers, help the small farmers to adopt potential irrigation systems that may be innovative and resource saving, create proper catchments during seasonal rains and also need to implement proper action plan in the field of agriculture. These are a few recommendations to help the small farmers engaged in turmeric cultivation.
Even though the competition and market challenges are tough to meet the challenges by the small farmers it is recommended that the women groups shall be encouraged to represent the turmeric cultivation in Erode district. Certification procedures shall be diluted and made easy for the small farmers to brand their product quality and safety aspects and also facilitate the provision of adequate loans and subsidies through banks and other financial institutions to sustain in the turmeric cultivation and achieve greater growth by the small farmers in the years to come.

- Many small farmers indicated migration of agricultural labours from rural to urban areas in search of employment and various other factors that influence such migration. These have significant impact in their turmeric cultivation while few had indicated inadequate agricultural action plan, some stated unseasonal rains and also natural disasters. A few of the small farmers opined inadequacy in maintaining water levels and improper maintenance. It is recommended that the policy makers shall attend to these issues and aid the farmers to overcome the situations.

5.4.2 Supports Required

- Technical Input on Selection of Seed/Planting Material, Cultivation Practices and Pest & Disease Management by State / Spices Board
- Promoting NGO/Self Help Groups among Farmers
- Development of Departmental Nurseries for Raising High Yielding Disease Resistance Planting Material
- Establishing Contract Farming/ Common facilities for Cleaning, Grading, Packing & Storing
- Special Campaign for Organic farming through agri-expo, etc.
- Cultivation/Certification for Turmeric

5.5 CONCLUSION

The present study examines the problems faced by the small farmers who are the turmeric producers and their prospects with regard to maintaining their livelihood, prospects in cultivating turmeric, market potential for their produces, presence of support
system and strategies adopted to overcome the market challenges by the small farmers in Erode district had formed the basis for the study. The study verifies the problems faced by the small farmers in achieving their livelihood which is favourable with the prospects in turmeric cultivation. Market potential is found to have positive impact even though there are barriers and challenges faced by the small farmers during turmeric cultivation. However, the level of satisfaction based on the technical support, training and skill development aspects need significant improvement to achieve the level of elevation to sustain and consistently achieve profitability in the field of turmeric cultivation and promotion by the small farmers in Erode district.

The technical support, training and development through government initiatives, institutions, cooperative societies and NGOs is much needed for the small farmers to persist in the agricultural business. While the small farmers shall be supported with the proper supply chain and linkages, certification issues, making more women to participate in the turmeric cultivation, produce quality of the plant material and help them to achieve necessary financial support and subsidies to achieve the prospects and livelihood of the small farmers in Erode district.

The study concludes that the sustainability of the small farmers’ livelihood was in generating the expected returns and maintaining adequate output with their existing small land holdings and growth with their minimal investment, minimal labour and family support system and helping them to achieve prospects and eradicate barriers and challenges existing in the turmeric market. Majority of the small farmers are highly successful in carrying out the business by making adequate profit with proper pricing, sustainable growth in the turmeric cultivation and promotion. The study has been done to assist the small farmers to achieve profitable returns for their hard work and also encourage them to continue their agricultural operations. It is important to encourage the small farmers involved in turmeric cultivation and help them to achieve the maximum growth in the years to come.
5.6 SCOPE FOR FURTHER RESEARCH

- The study can be extended to other districts in Tamil Nadu and other geographical locations.

- More number of small farmers can be included for the study.

- There is a scope for comparing small, medium and large farmers with the same set of constructs to identify results.