CHAPTER VII

SUMMARY OF THE CONCLUSION, FINDINGS AND SUGGESTIONS

Conclusion
The main objective of this chapter is to sum up main conclusions of the study.

The growth of the Mango production in Tamil Nadu will bring large benefits to the people by way of employment and income. Contact farming should be promoted to ensure timely and adequate supply of raw material to the processing industry. Government should promote the production of mango and other horticultural commodities in the region to promote adequate supply of raw material throughout the year for increasing the capacity utilization of the firms. For making a quantum jump in exports there is a need to formulate a suitable export strategy and strengthening of infrastructure facilities.

On the basis of results of the study, following conclusions are made as under:

Important Finding of the Study

The study is found the fact that India producing nearly 40.36 per cent of world’s mango production in 2001 and it increased to 42.84 per cent in 2003 but it started to decline since and it has reached in 40.45 per cent in 2010 and in 38.99 per cent in 2011.

The china is second largest mango country which consisting of 12.8 per cent in 2001, 12.97 per cent in 2005 of the total mango production after
that it has started to decline to the world's shares whereas in Thailand, the total mango production to share to total world production account for 6.64 per cent in 2001, 6.77 per cent in 2002 and it is found that there is continuous fluctuation increase in the mango production which comprising of 7.07 per cent in 2009 and 6.67 per cent in 2011.

In Mexico, the total mango production constitute at 6.33 per cent in 2001 but it declined to 5.81 per cent in 2002 and to 5.29 per cent in 2003, unfortunately it has started to decline after 2008 which comprising 4.82 per cent and 4.32 per cent in 2009.

It is estimated that in 1991-02, the total areas of mango production was 1.078 MT but it has increased to 5.19 per cent in 1992-03 and 6.57 per cent in 1993-04.

However, the areas of mango production accounted for 1.487 MT 1999-00 and in 2000-01 area was under mango crop was 1.519 MT ha and 1.623 MT ha in 2002-03 however it has increased to 14.85 per cent in 2003-04. In 2005-06, the total areas of mango production improved to 2.080 MT ha and it has constantly been raising from 2008-09 to 2012-13 at 2.309 MT ha and 2.464 MT ha with the growth rate of 6.33 per cent.

The study finds that the average area under mango in this period was 1.742 MT ha.

The production of mango rose from 1.27 million tonnes to 1.73 million tonnes between 2002-03 and 2012-13. The percentage increase in
production during 2012-13 over 2002-03 was accounted to be 36.22 per cent.

During 2010-11, total area under Mango cultivation was 2296.80 thousand hectares. During this period, area of Mango in Andhra Pradesh was the highest in the country i.e. 17.02 per cent (391.09 thousand ha.), followed by Uttar Pradesh 11.63 per cent (267.22 thousand ha.), and 8.27 per cent in Orissa (190.08 thousand ha.).

Among the 29 districts of Tamil Nadu state, Krishnagiri has found to secure higher production of mango and ranked as number one mango district which account for 26.71 per cent of cultivated areas and 22.68 per cent of the total production in Tamil Nadu. As far as the Thiruvallur is concerned, the area of cultivable land of mango account for 7.64 per cent and total production account for 4.60 per cent.

**Primary Data related to Findings**

It is inferred that the present study was conducted in Pochampalli taluk in Krishnagiri district and Uthukkottai taluks in Thiruvallur district, Tamil Nadu state. It is worthwhile to mention that these taluks have the highest acreage under mango than other taluks of the district.

It is inferred that out of 508 respondents, 24.3 percent (123) belong to age category of 35 and 40 years, 20.9 percent of sample farmers are in the age of 45-50 years which are followed by 20.3 percent at the 40-45 years, 7.9 percent less than 30 years and 13.2 percent more than 55 years.
The survey results indicate that the male respondents dominate the involvement of mango production as compared to female respondents. For instance, out of the total sample sizes, 89.4 percent of sample mango growers are male and the remaining are 10.6 percent females.

The study is to found that among the total sample size 508, 56.5 percent (287 respondents) are literates and the remaining 43.5 percent (221 respondents) are uneducated respondents.

About one third of the total samples i.e 31.5 per cent are in the category of Most Backward Class. It is noted that the samples growers belonging to Scheduled Castes category constitute only 15.9 per cent. The study finds that there is wide disparity in the distribution of the caste wise sample respondents in the taluk and village levels.

70.1 per cent live in nuclear family, 24.6 per cent are in the joint family systems. It shows that the joint family systems have been declined due to change in the socio economic style of the respondents.

It is observed that there is close association between the family size and pattern of mango production in the sample areas. As result of increasing the family size, it would be affect the economic conditions of the households.

The study estimates the mango production according to the involvement of members in the respondent’s family. Further it is noted that single member and two to three average members are not significantly influence the pattern of mango production.
About 62.6 per cent (318 respondents) have concrete houses whereas 28.1 per cent (143 respondents) possess thatched houses, 5.9 per cent of the respondents have tiles houses and only 3.3 per cent have mud houses which made up mud and hays. It is interesting to see that majority of respondents have pakka houses which indicates the well being of the respondents.

It is estimated that 38 per cent (193 respondents) possess more Rs.150000 and 25.8 per cent (131 respondents) has less than Rs.50000; 20.7 per cent of the respondents own the assets at worth of Rs100000-150000 and 15.6 per cent has Rs.50000-100000.

Nearly 75.8 per cent (508 total samples) of households owning a radio set. In village owning of radio reveals that 71.4 per cent of respondents constitute in Bommepalli village, 76.8 per cent in Keelkuppam village, and 78 per cent in Veeramalai village, 73.1 per cent in Alapakkam village, 84.4 per cent in Perandur village and 74.5 per cent in Thimmaboopalapuram village.

Out of the 508 sample sizes, 28.3 per cent (144 respondents) cultivates the lands at less than 3.5 ha as compared to 23.6 per cent (120 respondents) who cultivates more than 6.5 ha. Apart from that 18.1 per cent (90 respondents) plant mango trees at the range of 5.5 to 6.5 ha and 15.4 per cent in 4.5-5.5 ha of lands.

508 sample respondents, 28.3 per cent (144 respondents) of the respondents cultivate less than 3.5 ha which comprising 49.3 per cent of
Backward Class, 28.5 per cent of Most Backward Class and only 16.7 per cent of Scheduled Caste respondents and 23.6 per cent plant trees which consist of 43.3 per cent of Backward Class, 30.8 per cent of Most Backward Class and only 10.8 per cent of Scheduled Caste respondents.

It is found that 38 per cent of the respondents (193) who possess lands estimate at the rate of Rs.2200000; it shows the value of cultivatable lands considerably increasing whereas 25.8 per cent (131 respondents) who own the lands value at less than Rs.750000; 20.1 per cent of the sample farmers who possess lands cost at the range of Rs.1500000-2250000.

It is found that the respondents who have less than 3.5 ha of mango cultivatable lands account for 91 per cent belong to value category of less than Rs.750000 while cent per cent of respondents who own more than 6.5 ha value at more than Rs.2250000.

Out of 508 sample mango grown farmers, 69.7 per cent (354 respondents) cultivate the Bangalora (also named Totapuri) variety of mango because it is a commercial variety of South India.

It is estimated that among the total mango cultivating famers, 6.7 per cent (34 sample farmers) are Alphonsa cultivating farmers and it is one of the choicest varieties of the sample areas.

It is important to mention that Neelum variety of mango is another commercial variety indigenous to sample areas. In the district wise distribution of Neelam mango trees, among the 295 mango growers in Krishnagiri district, 10.2 per cent grow neelam mango trees which comprise
33.3 per cent in Bommepalli, 30 per cent in Keelkuppam and 36.7 per cent in Veeramalai villages while in Thiruvallur village, 9.9 per cent of farmers grow Neelam variety of mango trees which include 42.9 per cent in Alapakkam, 14.3 per cent in Perandur and 42.9 per cent in Thimmaboopalapuram villages.

Fruit is large roundish-oblique in shape and yellow in colour; high fruit quality and good keeping quality. It is also estimated that 5.7 per cent of the farmers plant Mulgoa mango trees. 4.4 per cent cultivates in Krishnagiri district to the 295 total farmers and 7.5 per cent in Thiruvallur district. In the village wise comparison, out of 4.4 per cent in Krishnagiri district

It is found that among the total sample, 7.9 per cent (40 respondents) grow Banganpalli mango trees which include 8.8 per cent (295 respondents) in Krishnagiri district and 6.6 per cent (213 respondents) in Thiruvallur district. In village wise distribution, out of 8.8 per cent in Krishnagiri districts,

Among the 144 sample who cultivate the size of lands less than 3.5 ha, 68.1 per cent grow up Thothapuri variety of mango as compared to produce 13.2 per cent of Neelam, 6.9 per cent of Malgoa, 6.3 per cent of Banganpalli and 5.6 per cent of Alphonso varieties whereas among the 120 sample who cultivate the size of lands more than 6.5 ha fabricate 68.3 per cent of thothapuri, 12.5 per cent of Neelam

The total sample respondents (259) 51 percent of mango growing respondents state that the reason for their livelihood for the choice of mango cultivation
Nearly 16 per cent of the sample farmers attributed the reason of high income for the choice of mango cultivation to the total sample mango cultivating farmers in sample villages.

19.3 percent of the respondent’s reports overcome their life as the reason which includes 26.5 per cent.

It is found that at the initial stage, the sample farmers have spent money in order to prepare the land for the cultivation of mango trees which account for Rs. 7189 per hectare at the first year.

It is estimated that the average cost of manures and fertilizers account for Rs.6902 per hectare for the first year, Rs.6952 per hectare for the subsequent second year, Rs.7202 in third year, Rs.7302 in fourth year and Rs.7802 in fifth year.

The average cost of plant production per cent households have also been increasing since first year to fifth years which constitute at Rs.16167.12 to Rs.19447.4114 whereas the plant material cost, spraying cost, fencing cost and intercropping cost per household remain constant at rate of Rs. 16840.79, Rs.9430.68, Rs.16840.79 and Rs.25597.801 respectively.

Among the 508 sample respondents, 28.3 per cent who cultivates the mango plant less than 3.5 hectares, 84.7 per cent pay out the total cost at less than Rs.75000 and only 15.3 per cent are in total cost category of Rs.75000-150000.

The respondents who own the lands for the cultivation mango less than 3.5 hectares incur the total const lies less than Rs.50000 constitute 84.7
per cent, 9.7 per cent in the total cost category of Rs. 50000-100000 fall at 5.6 per cent.

Among the total average costs, 14.8 per cent of the costs spend on labour which is the most important factors to determine the level of mango production Labour.

It is estimated that during the 6th year, the sample farmers incur the maintenance cost less than Rs.75000 account for 27.8 per cent as compared to the other years.

Total sample famers (508), who possess less than 3.5 hectares of cultivation of mango, almost 144 sample mango planting farmers spend less than Rs.75000 account for 66.7 per cent, 16.7 per cent incur at Rs.75000-100000, 13.2 per cent at Rs.100000-1250000.

It is estimated that out of 508 sample farmers, the respondents who have six years life span of mango trees account for 2.2 per cent but the 90.9 per cent of the respondents spend less than Rs.30000 of average maintenance cost whereas the sample farmers who have seven years of life of mango trees constitute 3 per cent and 93.3 per cent spend less than Rs.30000.

The mean value of mango production is accounted for 57.0295 according to the total sample respondents. Therefore it implies that there is a positive relationship between the increasing size of cultivation of mango tree plant and increasing total mango production. Apart from that when number of
life span year’s increase, as result the total number of mango per hectares also increases.

Among the 508 sample respondents, 144 who have less than 3.5 hectares of lands, 80.6 per cent earn less than Rs.500000, 13.2 per cent earn at Rs.500000-750000, 4.9 per cent at Rs.750000-100000. It is quite opposite that the respondents (120) who own more than 6.5 hectares of areas of mango cultivation, 75 per cent receive income from mango production more than Rs. 1500000.

Total sample size, 26 per cent of sample farmers earn net income at worth of less than Rs.500000 which consists of 96.2 per cent of income from 3.5 ha of size of lands while 24 per cent of the farmer earn net income more than Rs.1500000 which 69.8 per cent of income from more than 6.5 ha of mango cultivated areas.

Net present worth of Rs. 30067.237 per acre was estimated for the sampled respondents whereas the net present cost per cent acre was estimated of Rs. 14909.77 which indicates that mango cultivation fetches higher returns.

The benefit cost ratio is reasonably high and it came to be 2.02 implying that investing one rupee in mango cultivation would return Rs. 2.02. These results indicate that investing in mango orchard would bring huge returns to the farmers on one hand and for the country in the form of foreign earnings on the other hand.
The survey result indicates that the crop management is top most important techniques which account for 67.7 per cent responded to this techniques; 75.5 per cent of the farmers are relied that the plant protection measures should be improved the mango production.

The price difference (20.5 per cent) is considered to be the most important constraint in cultivation of mango in district which consists of 26.9 per cent of the farmers hailed from the Veeramalai village followed by 20.2 per cent in Thimmaboopalapuram, 16.3 per cent, each 15.4 per cent from Bommepalli and Alapakkam villages.

It is concluded that there is a direct relationship between area and productivity of mango production.

The exports of mango products are positively correlated to the Gross Domestic Product in India.

The costs of production of mango cultivations are negatively correlated to the export of mango due to increase in production cost of mango it will have an impact of exporting mango.

It is found that higher level of literacy rate influence the higher level of application of production technology, it results the level of production increases. The study suggests that literacy awareness programme should be conducted to mango growing farmers in order to increase quality of mango and knowhow of production.

Thus, it is concluded that higher level of participation in mango production and lower level income earned by the sample respondents.
The regression results show that there is significant difference between less than five hectares and more than five hectares of mango cultivation. Therefore it finds that higher levels of areas of cultivation acquire higher level of production and lower levels of areas of cultivation provide lower production.

The present research work is related to the study of economics of mango production in Krishnagiri and Thiruvallur districts, with a view to identify various productivity levels and tahsil wise disparities in them. This helps to focus attention on productivity areas. It also helps to have an overall better planning and management in the study region.

**Some suggestions are also given in this chapter**

The study also tried to suggest few observations for improvement of mango cultivation in the district. To improve mango production, the following suggestions are given:

- Role of agricultural extension department should be strengthened to boost up mango cultivation and production in the sample districts.

- The growth rate mango production indicates that the increase in production was due to area, rather than productivity, which calls for intensive efforts to increase productivity of mango in the study area.
Fruits of mango are perishable in nature and they need proper packaging, storing and transporting faculties. However, such facilities are not available to the farmers. If these facilities are made available to the farmers at their door steps, the mango cultivation would rise to a great extent. There is a lack of research in mango industry.

Prospects of mango cultivation require increased research facilities, research personnel, training to researchers and improved communication between researchers and mango growers. Especially small growers need more attention of the researchers.

Promotional programmes like “Mango Mission -2012” on select mango growing belts with realistic targets can attract and motivate persons to join in this business.

Facilities like pre-cooling, cold storages, pack house, grading packing line etc. have been made available.

Improvements in market infrastructure such as storage facilities, cold storage, better Packaging and weighing facilities, better road links etc. would also helpful in improving the marketing efficiency.

Mango growing farmers should have associations to provide technical, economic and social support to the farmers.
Government should focus on Supply Chain Management Activities like (i) Purchasing (ii) Quality control (iii) Demand and Supply planning (iv) Production planning, Scheduling and Control (vii) Warehousing /distribution and (viii) Customer service etc should be carried out in an organized manner.

Grading the fruit is necessary for a better outlook and maintains the quality of the product. Mangoes should be graded on the basis of quality, weight, size and fruits with defects should be removed.

Fresh mango processing units should be initiated through different supporting schemes.

Efficient handling of post-harvest losses to improve cold storage facilities in the district is a must.

Better and improved packing technology is necessary in the district.

Orientation programmes to the local growers and exporters will not only enhance their knowledge about overseas markets and the particular quality specifications necessary to operate in those markets but will also give them the extra incentive to hedge the risk involved in exporting mango to only one country.

Promotion of growers’ cooperatives may also act as a key component to boost up the mango economy. This will help enhance the bargaining power of the producers and will
additionally help the exporters to procure bulk produce with ease.

- The demonstrations need to be arranged to educate the farmers to adopt recommended application of plant protection chemicals since they are being over used.