CHAPTER IX

SUMMARY AND CONCLUSIONS

India produces 63 spices and condiments. Of which, cardamom, pepper, chilli, turmeric, ginger, cumin, coriandar, celery, fennel, fenugreek and garlic are commercially produced in India and exported in sizeable quantities. Chilli and turmeric are the tropical crops which are cultivated widely in India especially in South India. In the export of spices, chilli captured the second rank both in quantity and value of foreign exchange earnings and the turmeric ranked third next to pepper and chilli.

Hence, a study on the chilli and turmeric was conducted in Erode district. Erode district was purposively selected because Erode, the headquarters of Erode district, is main assembling centre for turmeric. The study mainly focused on production, marketing and export of selected spices with the following objectives.

1. To examine the growth in area, production and productivity of selected spices of India.

2. To analyse the export performance of the selected spices.

3. To examine the supply response of the selected spices in India.

4. To analyse the price behaviour of selected spices in the selected markets of the selected district.

5. To examine the mode of marketing of selected spices by selected farmers and to identify their problems.
DESIGN OF THE STUDY

Both primary as well as secondary data were collected as follows:

Collection of the Secondary data

The following secondary data were collected for the present study with reference to the objectives chosen for the study from the published sources.

1. The data on area, production and productivity of chillies and turmeric for India, Tamil Nadu and Erode district were collected for the period of reference from 1970-71 to 1994-95.
2. The data on rainfall, farm harvest prices of chillies and turmeric and prices of competing crops were collected for the period of reference from 1984-85 to 1994-95.
3. Information on quantum and value of export of chillies and turmeric were collected. The period of reference for chillies is from 1984-85 to 1997-98 and for turmeric is from 1984-85 to 1994-95.
4. Information regarding arrival and prices of chillies and turmeric were collected from Mulanur and Erode regulated markets respectively. The period of reference is from 1984-85 to 1996-97.

Collection of Primary data

Primary data required for the study were collected from the farmers. Among 20 blocks in Erode district, the four blocks such as Erode, Mulanur, Satyamangalam and Punjaipuliampatti were selected purposively. From each block, two villages were selected purposively. From each village, 20 farmers were selected randomly. In all, 160 farmers were chosen and the required data were collected from them.
Technique of Analysis

The collected data were processed and the appropriate statistical tools were employed taking into account the objectives chosen for the study.

SALIENT FINDINGS OF THE STUDY

Trends in Production of Chillies

Area, production and yield of chillies in India was increased, in general, during the period of reference with few exceptions. During the period of reference (1970-71 to 1994-95), the area under chillies was maximum in the year 1992-93 (9,62,100 hectares), whereas the production and yield of chillies attained the maximum during 1985-86.

The major states producing chillies are Andhra Pradesh, Maharashtra, Karnataka, Madhya Pradesh, Rajasthan, Orissa, Uttar Pradesh, West Bengal and Gujarat.

Out of the major states producing chillies in India, Andhra Pradesh had more area under chillies during the period of reference (1970-71 to 1994-95) which was followed by Maharashtra, Karnataka, Madhya Pradesh, Rajasthan, Orissa, Uttar Pradesh, West Bengal and Gujarat. Growth of the area was maximum in West Bengal which was followed by Karnataka, Andhra Pradesh and Uttar Pradesh respectively. The growth of area was very less in Orissa and Uttar Pradesh. The growth in area was negative in Gujarat, Madhya Pradesh and Maharashtra respectively which was evident from the compound growth rate estimated.
The state-wise production of chillies also indicate that it was maximum in Andhra Pradesh continuously during the reference period. The growth in the production of chillies were positive in all the selected major states except Maharashtra and Orissa. The state-wise yield shows that it was maximum in Andhra Pradesh in all the years of reference period and it was followed by Gujarat, Rajasthan and Maharashtra respectively. Except Orissa and West Bengal all the states showed the increasing trend in yield which is supported by the positive growth rate observed in these states.

In these selected states, Andhra Pradesh, Karnataka, Rajasthan and Uttar Pradesh showed positive growth in area, production and yield. Tamil Nadu showed negative growth in area, production and productivity. Andhra Pradesh recorded the maximum area, production and yield among all the major states under consideration.

In Erode district, the production and yield of chillies was increased, in general, during the period of reference. But area under this crop showed negative growth. The estimated compound growth rates were positive in case of production and yield, but it was negative in case of area.

While examining the relative contribution of area and yield on production of chillies, it is understood that yield effect was predominant in production of this crop in India. But area effect was predominant in production of chillies in Tamil Nadu and Erode district.

The magnitude of variation in area, production and productivity of chillies during the reference period indicates that the production variability was higher than area and yield variability of India, Tamil Nadu and Erode district.
In order to analyse the supply behaviour of chillies, the area and yield response function were estimated for India, Tamil Nadu and Erode district separately. The results of the analysis revealed that previous year farm harvest price had exerted significant positive influence on current year area in the country. But in Tamil Nadu, price of competing crops, price risk and total rainfall were significantly influenced area allocation. In case of Erode none of variables included in the function influenced under chillies. This might be due to exclusion of other important variables such as irrigation, yield, etc. from this function.

The yield response function of chillies revealed that the time and price were positively associated with current year yield of the country and the state (Tamil Nadu). In case of Erode, the price of chillies and the price risk were positively related to yield.

The short-run price elasticity for area and yield response for chillies in India, Tamil Nadu and Erode was positive which means that farmers in these areas would bring additional area under these crops for every one per cent increase of price. The co-efficient of area adjustment and yield adjustment indicate that the response of area to price is very much low and it is less responsive.

**TRENDS IN PRODUCTION OF TURMERIC**

Area, production and yield of turmeric in the country during the reference period showed fluctuations. However, the compound growth rate estimated for the three variables indicated that positive growth which was estimated at 0.602 per cent, 15.79 per cent and 8.44 per cent per annum respectively.
The major states growing turmeric in India are Andhra Pradesh, Maharashtra, Assam, Bihar, Karnataka, Kerala, Orissa, Meghalaya and West Bengal. State-wise analysis revealed that area and production were high in Andhra Pradesh throughout the period of reference. Similarly, Orissa stood second in area and production throughout the period of reference. But in yield both Andhra Pradesh and Karnataka compete each other for first rank. The negative growth in area, production and productivity of turmeric were observed in Bihar and Maharashtra. Kerala showed negative growth only in area. All the other states Andhra Pradesh, Assam, Karnataka, Meghalaya, Orissa and West Bengal showed positive growth in all the three variables.

The trends in growth of area, production and yield in Tamil Nadu shows positive growth in all the three variables which was evidenced from the estimated positive growth rates. The estimated compound growth rates were 5.32, 12.35 and 5.83 per cent respectively.

Area, production and yield of turmeric in Erode district showed a declining trend in all the three variables. The compound growth rates estimated for the three variables were negative and they were -17.44, -23.64 and -7.51 respectively.

The relative contribution of area and yield on growth of production of turmeric during the reference period indicates that yield effect was predominant in India, Tamil Nadu and Erode district compared to production effect.

The co-efficient of variation estimated for assessing the magnitude of fluctuations in area, production and yield of turmeric during the period of reference, indicates that fluctuations in all the three variables in Erode district were higher.
than Tamil Nadu and India. In general, production variability was higher than area and yield variability in India, Tamil Nadu and Erode district.

The supply behaviour of turmeric was analysed through estimation of area and yield response function. The area response function indicate that no factors are significantly influenced the farmers decision regarding the area allocation in India and Tamil Nadu, whereas lagged farm harvest price had influenced significantly area allocation decision in Erode district.

The yield response function of turmeric revealed that the yield lagged by one year, lagged farm harvest price and time were positively influenced the yield in India. In Tamil Nadu and Erode district, all the variables except time were positively influencing the yield.

Short-run price elasticities of area response and yield response estimated for India, Tamil Nadu and Erode district were positive which indicate that more additional area can be brought for cultivation. The co-efficient of yield adjustment was high in Tamil Nadu and Erode which indicates that there is a scope to increase the yield.

**EXPORT OF SELECTED SPICES FROM INDIA**

The export of spice crops from India indicates that value of export was increased from 1991-92 to 1998-99. But the quantum of export showed a fluctuating trend.

**Export of Chillies:** Among the selected spices, quantum of export of chillies from India during the reference period showed a fluctuating trend.
The regression equation which was fitted to examine the influence of production on percentage share of export to total production indicates that the production did not influence share of export of chillies as is evident from negative co-efficients obtained.

Another regression equation was fitted to identify the determinants of export. Among the variables included in the function, trend (T) significantly influenced the export.

The country-wise export of chillies from India indicate that U.S.A. occupied the first rank which was followed by Sri Lanka, the U.A.E. and Singapore in that order during 1997-98 both in terms of quantity and value.

**Export of Turmeric:** India is the largest producer and supplier of turmeric in the world. China, Peru and Thailand are the other producers. The export of turmeric from India in terms of quantity and value were not steady and a wide fluctuation was observed during the period of reference.

The regression equation fitted to examine the influence of production on percentage share of export to total production of turmeric showed a negative sign which means that production did not influence proportionately the export of turmeric. Identification of determinants of exports of turmeric indicates that all the selected variables contributed positively but no variable was significant.

The country-wide export of turmeric from India during 1994-95 provides the evidence that United Arab Emirates imported the maximum which was followed by countries like Japan, United Kingdom, United States of America, Sri Lanka, Iran and Singapore in that order. The other countries importing turmeric are Saudi Arabia, Netherlands, Kuwait, Canada and Yemen Arab Emirates.
ARRIVAL AND PRICES OF CHILLIES IN ERODE DISTRICT

Chillies: The arrival of chillies at Mulanur regulated market was high during 1988-89 and the next peak arrival was observed in the year 1990-91. The negative trend in arrival was observed during the period of reference, which was evident from the negative regression coefficient of the equation. The seasonal variation in arrivals of chillies indicate that the seasonal index was high during the month of April and they were above 100 from April to August except July and in November.

The annual weighted average prices of chillies at Mulanur regulated market indicate that the weighted average price was maximum during the year 1992-93. The seasonal indices of prices indicate the price index was maximum in the month of November. The estimated trend regression equation indicates that the price was increased positively during the period of reference. The price of dry chillies was increased every year by Rs. 163 per quintal.

Turmeric: The arrival of turmeric at Erode regulated market was maximum during the year 1989-90 during the period of reference. The estimated trend equation for arrival of turmeric indicated that there was negative trend in arrival during the period of reference. The seasonal indices regarding the arrival of turmeric reached the highest in the month of March. The arrival indices were more than 100 from March to August except July.

The annual weighted average prices of turmeric in Erode regulated market indicate that the average price realised during the year 1992-93 was maximum. The seasonal indices on price showed that it was maximum during the month of October. The price indices were more than 100 continuously from July to January. The trend equation indicates that the price of turmeric was increased every year by Rs.88 per quintal.
MARKETING OF SELECTED SPICES IN ERODE DISTRICT

Mode of marketing of selected spices namely chillies and turmeric are not entirely different and it is closely related. Marketing of chillies and turmeric through different agents are discussed below.

MARKETING CHANNEL OF CHILLIES

The farmers sells the produce to the wholesaler either directly or through regulated markets and to village merchants and commission agents. The wholesaler purchased the produce from commission agents. The wholesaler purchased the produce from commission agents also. The primary wholesaler who purchases dry chillies from the farmer sells it to secondary wholesaler who convert the dry chillies into other preparations. The retailer gets dry chillies from primary wholesaler and chillies preparations from secondary wholesaler for sale to ultimate consumers.

Tuticorin and Madras are the two important terminal markets where from the chillis exported to consumers aboard. Only few co-operative marketing societies transact chillies and they are very meagre and forms only a small percentage of the marketed surplus.

MARKETING CHANNEL OF TURMERIC

The grower-seller sells turmeric to wholesaler through regulated markets, co-operative societies and commission agents. The commission agent also purchases turmeric directly from the farmers. Another middlemen known as wholesaler-cum-processor who purchases turmeric from wholesaler and farmer process the raw turmeric into turmeric powder. The processed turmeric by the processor is sold to the another set of commission agents (commission agents at districts) who is involved in marketing of turmeric preparations in other districts. This type of commission agent sells the turmeric preparation to secondary
wholesaler of processed turmeric. Sometimes this secondary wholesaler gets processed turmeric from processor also. Retailer gets the turmeric preparation from the secondary wholesaler as well as directly from the processor for selling to consumers.

The problems encountered by farmers in marketing of chillies and turmeric are identified through opinion survey and the results of the analyses are presented below.

**Opinion Survey on Chillies:** As per opinion surveys, all the respondent farmers reported, collusion among traders, lack of transport facility and inadequate storage facilities were their foremost problems. These problems were followed by inadequate price and delayed payment, respectively.

Analysis of Garette ranking technique reveals that collusion among traders ranked first with a score of 52.84, inadequate price paid to the farmers ranked second with a score of 52.40. It was followed by lack of transport facilities (51.97); inadequate storage facility (46.14) and delayed payments (36.20) respectively.

**Opinion Survey on Turmeric:** As per opinion survey, all the respondent farmers reported that collusion among traders and lack of transport facilities were their foremost problems. Next to these problems, inadequate price, delayed payment and inadequate storage facilities were experienced by the farmers in that order.

Garette ranking technique indicated that lack of transport facility was the foremost problem faced by the growers of turmeric from the selected villages which was followed collusion among traders, delayed payment, inadequate price and inadequate storage facility respectively.
Suggestions

The study indicated that arrival trend of chillies and turmeric in the selected markets were negative whereas price trends were also negative. Though the prices prevalent in the markets are increased every year, the arrivals declined. It is a strange situation and therefore factors which inhibit the arrival of selected spices to the selected markets should be identified and rectified.

An important factor which limit the arrival of any product to a market, is existence of low price during glut and high price during scarcity. The analysis on seasonal variation in arrivals and prices of selected spices in selected markets indicate that exploitation by middlemen in fixing prices was non-existent. This conclusion was made by mainly because little variation in seasonal price indices though many ups and downs in seasonal arrival indices. Therefore it could be concluded that markets of selected spices in selected district functioning efficiently.

Further, the farmer – respondents opined that they faced the problems such as collusion among traders, inadequate price and lack of transport facilities. However, observation on prices and arrival data shows the non-existence of collusion which is one of the characteristic of efficient market.

Since the farmers feel that price realised by them was inadequate, price incentive measures should be undertaken by the government to make the selected spices remunerative. The government should also take steps to provide proper transport facilities to market their produce in efficient marketing institutions in assembling centres rather than marketing the produce in the village itself at low prices.
Since spice is a value added commodity, the policy makers should frame the policy which will encourage production of the value added items of spices so as to attract the customers of foreign nations concurrently the government should also encourage the entrepreneurs who wish to establish the agro-processing industries which will mainly focus on value addition by means of easy financial facility, export incentives, etc.

**Suggestion for further research**

Though the analysis of the study indicates the existence of efficient marketing system in the selected area, the farmers opinion indicates the negative sense. Due to time constraints this contrasting result is not investigated. Therefore it is necessary to conduct investigation on these aspects.