

**UNIVERSITY OF AGRICULTURAL SCIENCES, DHARWAD**



**VALUE CHAIN ANALYSIS OF CASHEW IN KONKAN  
REGION OF MAHARASHTRA**

**Final Report**

**Submitted to:**

**Directorate of Cashew & Cocoa Development  
Department of Agriculture, Cooperation & Farmer's Welfare  
Ministry of Agriculture, Cooperation & Farmer's Welfare  
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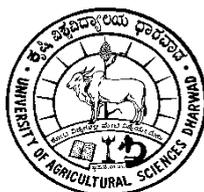
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**Final Report On**

## **VALUE CHAIN ANALYSIS OF CASHEW IN KONKAN REGION OF MAHARASHTRA**



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## CONTENTS

Sl. No.	Particulars	Page No.
I	Introduction	6
1.1	History of Cashewnut	6
1.2	World scenario of Cashewnut	7
1.3	Cashew scenario of India	7
1.4	Economic use of cashew products	8
1.5	Value chain and value chain analysis	9
1.6	Present study	10
II	Methodology	11
III	Major findings of the investigation	20
3.1	Trends in area, production and productivity of cashew nut in India	21
3.2	Socio-Economic Profile of Cashewnut growers	26
3.3	Cost and returns of Cashewnut in Maharashtra	29
3.4	Preference of farmers for choosing a particular market	31
3.5	Production constraints faced by Cashewnut producers	32
3.6	Marketing constraints faced by Cashewnut producers	33
3.7	Marketing of raw Cashewnut by farmers in Maharashtra	34
3.8	General profile of the village traders	36
3.9	General profile of the wholesalers	37
3.10	General profile of the processors	39
3.11	Marketing cost incurred and margins realized by village traders	42
3.12	Constraints faced by village traders	44

3.13	Constraints faced by wholesalers	44
3.14	Constraints faced by processors	45
3.15	Price spread in various marketing channels	45
IV	Summary and policy implications	52
4.1	Policy recommendations	58

### List of figures

Sl. No.	Particulars	Page No.
1	Map Showing Study area	13
2	Map showing cashew growing states in India	13
3	Growth in Area, Production and Productivity of Cashew nut in India during 2008-09 to 2016-17)	22
4	Growth in area, production and productivity of Cashew nut in India (2001-02 to 2016-17)	24
5	Share of different agents in consumer's price in Ratnagiri district <b>Fig-5</b> Channel-I <b>Fig-6</b> Channel-II <b>Fig-7</b> Channel-III <b>Fig-8</b> Channel-IV	48
6	Share of different agents in consumer's price in Sindhudurga district <b>Fig-9</b> Channel-I <b>Fig-10</b> Channel-II <b>Fig-11</b> Channel-III	50
7	<b>Fig-12:</b> Value chain map of Cashewnut	51

## List of Tables

Sl. No.	Particulars	Page No.
2.1	Sampling frame	12
1	States wise Growth in Area, Production and Productivity of Cashew nut in India during	21
2	Growth in area, production and productivity of Cashew nut in India	23
3	Area, production and productivity of Cashewnut in Maharashtra	25
4	Socio-economic characteristics of Cashewnut growers in Konkan Maharashtra	27
5	Experience of sample farmers in Cashewnut cultivation	28
6	Occupation pattern of sample respondents in Maharashtra	28
7	Establishment Cost of Cashewnut plantation in Ratnagiri district of Maharashtra	29
8	Cost of cultivation of Cashewnut plantation in Maharashtra	30
9	Yields obtained and returns realized in Cashewnut (5th year onwards)	31
10	Preference of farmers for choosing a particular market	31
11	Production constraints faced by Cashewnut producers	32
12	Marketing constraints faced by Cashew nut producers	34
13	Marketing of raw Cashewnut by Farmers in Maharashtra state	34
14	General profile of the village traders	37
15	General profile of raw Cashewnut wholesale purchasers	39
16	General profile of processors	41
17	Marketing cost incurred and margins realized by market intermediaries	43
18	Constraints faced by village traders	44
19	Constraints faced by Wholesale purchasers	45
20	Constraints faced by Processors	45
21	Price spread in Cashewnut in Ratnagiri district of Maharashtra	47
22	Price spread in Cashewnut in Sindhudurga district of Maharashtra	49

## I. INTRODUCTION

Cashew (*Anacardium occidentale L.*) is called as the poor man's crop and the rich man's favourite snack food all over the world. Cashew tree is believed to be a native of Brazil, from where it has dispersed to different parts of the world primarily for soil conservation, afforestation and wasteland development. The term 'cashew' has originated from the Brazilian name 'acajaiba' and the Tupi name 'acaju', which the Portuguese converted into 'caju' and is commonly known as 'kaju' in India. It is known as 'ParagiAndi' in Kerala meaning foreign nut, 'Lanka Beeja' in Orissa assuming its introduction from Sri Lanka, and 'Mundiri' indicating the shape of the nut in Tamil Nadu. Cashew is cultivated mainly in the Asian, African and Latin American zones. The Asiatic zone includes India and Vietnam as the major producers, besides Indonesia, Philippines, Malaysia, Thailand and Sri Lanka. In the African zone, Nigeria, Côte d'Ivoire and Tanzania are the major producers, besides other countries like Benin, Guinea Bissau, Mozambique, Ghana, Senegal and Madagascar.

### 1.1 History of Cashewnut

It is interesting to note that cashew spread these countries with the aid of elephants that consumed the cashew fruit along with its nut. As the nut was too hard to digest, later, the undigested nut was expelled with the droppings and that resulted in the spurt of cashew plants throughout these countries. Subsequently, the tree spread to a number of countries in Africa, Asia, Latin America and West Indies. The Portuguese traders thus introduced the cashew tree into India and Africa to prevent soil erosion. Cashew is now widely cultivated for its kernel, fruit, cashew nut shell liquid and other products. However, it is mostly found in the coastal regions of South Africa, Madagascar, Tanzania, and South Asia, from Sri Lanka to the Philippines.

Cashew was introduced in other parts of the world since 16<sup>th</sup> century mainly with the intention of afforestation and soil conservation. From its humble beginning as a crop intended to check soil erosion, but the cashew has come out as a major foreign exchange earner in many countries. The Cashew tree though in existence for a long time was identified as a useful plant only in the early twentieth century. The earlier reports about cashew are from Brazil, French, Portuguese and Dutch observed Thevat (1558) French naturalist, who visited Brazil during the period of French settlement, first described the plant being located in the

north east. He saw some local people harvesting the cashew fruits and squeezing juice from them into a jar.

## **1.2. World Cashewnut scenario**

Cashew is predominantly grown in Asia, Africa and South America continents. Asiatic zones mainly include India, Vietnam and Indonesia as the major cashew producing countries followed by Philippines, Malaysia, Thailand and Sri-Lanka. African countries producing cashew are Nigeria, Tanzania, Mozambique, Kenya, Benin, Guinea- Bissau, Mozambique, Ghana, Senegal and Madagascar.

The major cashew producing countries in Latin America are Brazil, Columbia, Costa Rica, Honduras and Salvador. Though cashew is native of Brazil, it gained greater importance in countries like India, Vietnam, and other African countries. In 1960's, India was the major contributor to world cashew nut production followed by Mozambique and Tanzania. Later, East African countries like Tanzania, Mozambique and Kenya introduced cashew. In 1970's, the other Asian countries such as Indonesia, Malaysia and Cambodia, cashew cultivation became popular till 80's raw cashewnut production witnessed slow and steady growth (Hand book of cashew nut 2014). From 1990's global Raw Cashewnut (RCN) production has seen a tremendous growth. Since 1990, Vietnam cashew industry has seen massive growth with respect to cashew nut production and processing. During 1999-2000 world production of raw cashew nut was 1359 thousand tons and it has increased to 3049 thousand tonnes during 2016-17. At present, Vietnam is the largest raw cashew nut exporting country to India. From 2001-02 to 2015-06, area and production of cashew nut has increased at the rate of 2.29 per cent and 3.02 per cent respectively. India's production of raw cashew nut compared to the world production is estimated nearly 34 percent. Production in other countries like Vietnam, Brazil and Ivory Coast also illustrated the increased position.

## **1.3 Cashew scenario of India**

India is the largest producer, processor, consumer and exporter of cashew in the world. The current Cashewnut production in India accounts for 45 per cent of the global production. India being the leader in the world in raw Cashew nut production and is also the largest supplier of cashew kernels to the major world markets. A large number of small and marginal farmers, especially living on the coastal belts of India, depend on cashew for their livelihood. Cultivation of cashew in India confines mainly to the peninsular areas. It is grown in Kerala, Karnataka, Goa, and Maharashtra along the West coast and Tamil Nadu, Andhra

Pradesh, Odissa and West Bengal along the East-coast, occupies an area of 10.30 lakh hectares in the country with a production of 9.98 lakh metric tonnes. Even though strong competition from other countries has reduced India's share in the global cashew exports, India's advantage in terms of less percentage of broken kernels has brought European and US buyers to its proximity. To strengthen cashew exports, there is scope for increasing production by developing cashew as plantation crop on commercial basis, exploring new markets and strengthening non-traditional markets, adding value to the product by introducing innovations in processing and branding them. Among the major states in the country, Maharashtra tops with respect to area, production and productivity of cashew nut. Over the years, the area under cashew cultivation has registered an increase in all the major cashew growing states, except in Kerala.

#### **1.4 Cashew scenario of Maharashtra**

During 2008-09 Maharashtra state grown cashewnut in an area of 170 thousand hectares produced 225 thousand tonnes with yield of 1323 kg per hectare. The area, production and productivity in Maharashtra showed a positive trend has been increased by 0.01, 0.015 and 0.005 per cent per year. During 2016-17, Maharashtra in an area of 186.20 thousand hectares produced 256.61 thousand tonnes with yield of 1378 kg per hectares.

#### **1.5 Economic use of cashew products**

Cashew kernel has a unique place in all functions and celebrations of both developed and developing countries. It is offered at wedding ceremonies as a token of fertility. In fact, it is considered as having aphrodisiac properties. Its place is very prominent at social and religious celebrations. It is offered to the guests and visitors and very important persons in educational, social, religions and political field. Three main cashew products are traded at the international market: raw cashew nuts, cashew kernel and cashew nut shell liquid. Cashew apple is another product which is generally processed and consumed locally. The raw cashew nut and cashew kernel are the main commercial products. Raw nuts are exported and imported before or after processing the cashew kernel. Cashewnut shell liquid is an important commercial byproduct released from raw nuts at the time of processing. It has industrial and medical applications. Moreover, the skin of the nut is high in tannins and can be recovered and used in the tanning of hides. From Cashew apple or fruit, juice is extracted which has high vitamin content and it could be fermented to give a high proof. In fact cashew nut shell liquid is a valuable raw material for the preparation of oil paints, varnishes, pigments of

gums, type writer rolls, automobile, break lining and lubricant in air craft. The cashew apple is used in the preparation of fruit juice, syrup, candy, jelly, pickles, cashew wine and fenny.

Cashew kernel is smaller in size, higher in nutritional value, pleasant, tasty and one of the most important commercial product. It is known for its delicious, pleasant taste and for the balanced nutritive profile. It is estimated that 60 per cent of the cashew kernel is consumed in the form of snacks and the remaining 40 per cent included in confectionery. It contains protein, fat, carbohydrates and all the fat soluble vitamins A, D and K. It is also a source of minerals like calcium, magnesium, phosphorous, potassium, sodium, iron and others. In fact, cashew is a perfect food with zero per cent cholesterol. At present, the dry leaves are used as natural manure for other crops. Cashew also has medicinal value Cashew apple liquor is used for the ailments of worm, sickness, cold, body-ache, fever or flue, toothache, fresh wounds and cuts, cramps due to chilly weather, muscular pain, irregular movement of bowels, low blood pressure, loss of sleep for aged people, diarrhoea and cholera. The alcoholic produce 'Fenny' has laxative properties. Cashew apple is eaten as a remedy for scurvy. The kernels possess aphrodisiac qualities. Cardol and Anacardic acid possess powerful rubifacient and vesicant properties obtained from the shell by maceration in spirit and are applied to cure cracks on the sole of the feet. The dead branches and twigs are regularly collected for fire wood.

#### **1.6. Value chain and value chain analysis**

Value chain is a series of activities in which products pass through all in order and through each activity, the product gains some value. Value Chain Analysis (VCA) deals with the examination of the value chain of an enterprise to ascertain how much and at stage value is added. Value chain improvements reduce inventories, wastage and cost, thus increase efficiency within the firm and in the market channel. Achieving these gains requires mobility and flexibility in the scheduling and location of production, processes, inventories and distribution. This can be achieved through supportive and cooperative supplier-buyer relationships (Porter, 1985). Hence, in the present study, the value chain for cashew nut is studied tracing the value addition at different stage of the marketing channel of cashew nut.

A value chain or supply chain is a set of value creating activities in the production-distribution process and the explicit structure of linkages among these activities. Value chain is associated with quality differentiation and value added from the consumers perspective, while supply chain is a supplier perspective with a focus on efficiency and logistics and coordination aspects of moving products from 'farm to fork'. However, there is a need to

integrate both the terms as food systems need to deliver both value and efficiency. On the other hand, food value chains 'comprise all activities required to bring farm products to consumers, including agricultural production, processing, storage, marketing, distribution and consumption. Various segments of value chain from production to consumption that includes production, processing, wholesaling and retailing have been undergoing rapid and unprecedented changes in recent times in the country. The present survey focus on these issues in cashew nut as is one of the most important food item of the human diet and also export earner for the nation.

In spite of its several benefits for the Indian economy, in general and economy of major cashew growing states in the country in particular, the cashew sector facing many problems in production, processing, marketing and value addition of different stages. The market intermediaries are enjoying all the benefits of the value addition by exploiting farmers and consumers.

### **1.7 Present study**

Keeping in view the importance of cashew in the Indian economy in general and its major growing states in particular, the present study made an attempt to analyze the cashew value chain in Maharashtra with the following specific objectives;

#### **Specific objectives:**

1. To analyze the trends in area, production, productivity and export of cashewnut.
2. To map the Cashewnut value chain in Maharashtra.
3. To estimate the marketing costs and marketing efficiency in the Cashewnut value chains.
4. To estimate the product-wise value addition in processing of cashewnut.
5. To determine the constraints and opportunities (including investment) at each stage of Cashewnut value chain.
6. To document assistances availed through various government schemes by the Stakeholders.

## II. METHODOLOGY

### 2.1. Description of the study area

Maharashtra is a state in the western region of India and is India's second-most populous state and third-largest state by area spread over 307,713 km<sup>2</sup> (118,809 sq mi), it is bordered by the Arabian Sea to the west and the Indian states of Karnataka, Telangana, Goa, Gujarat, Chhattisgarh, Madhya Pradesh and the Union territory of Dadra and Nagar Haveli. It is also the world's second-most populous subnational entity. It has over 112 million inhabitants and its capital, Mumbai, has a population of approximately 18 million. Nagpur is Maharashtra's second capital as well as its winter capital.

Maharashtra is the wealthiest state by all major economic parameters and also the most industrialized state in India. The state contributes about 25% of the country's industrial output and 23.2% of its GDP. As of 2011, the state had a per capita income of 100,350 (US\$1,660), more than the national average of 73,000 (US\$1,219). Its GDP per capita crossed the 120,000 (US\$1,900) threshold for the first time in 2013, making it one of the richest states in India. Mumbai, also known as Bombay (the official name until 1995), has been the capital of Maharashtra since the day it was formed. The major rivers of the state are Godavari, and Krishna. Narmada and Tapti Rivers flow near the border between Maharashtra and Madhya Pradesh and Gujarat. Maharashtra is the third most urbanized state among major states in India.

Flora of Maharashtra is heterogeneous in composition. The recorded thick forest area in the state was 61,939 km<sup>2</sup> (23,915 sq mi) which was about 20.13% of the state's geographical area. There are three main Public Forestry Institutions (PFIs) in the Maharashtra state: the Maharashtra Forest Department (MFD), the Forest Development Corporation of Maharashtra (FDCM) and the Directorate of Social Forestry (SFD). Maharashtra is divided into five geographic regions. Konkan is the western coastal region, between the Western Ghats and the sea. The flora of regions such as Nag region formed by Nagpur, Bhandara, Chandrapur and Gadchiroli and the plateau of Vidarbha composed by Wardha, Amravati, Yavatmal, Akola and Buldhana districts. Most of the forests are found in the Sahyadri region and are very dense. These forests are confined to areas which have low annual rainfall (50–70 cm), a mean annual temperature of 25–27 °C and low humidity. Some of the forest areas are converted into wildlife reserves, thus preserving their biodiversity.

## **2.2 Sampling procedure**

Multistage sampling technique was adopted in the selection of the districts, taluks, villages, cashew growers and markets and market intermediaries.

### **2.2.1 Selection of study area**

Keeping in view the objectives of the study, two districts viz., Sindhudurga and Ratnagiri districts were selected as these two districts are having major portion of cashew plantation area in Maharashtra state. From each selected district two taluks and from each taluk two villages were selected based on highest area under cashew plantation.

As mentioned above Dodamarga and Sawanthwadi taluks in Sindhudurga district and Lanja and Rajapur taluks in Ratnagiri district were selected for farmer's survey as they are the major cashew growing taluks in Ratnagiri district. From each selected taluk two villages were selected and from each village, 15 farmers were selected. In addition to cashew growers, the market intermediaries involved in input supply, processors and other marketing intermediaries add value to cashew were selected. Thus, in all 120 cashew growers, 84 market intermediaries including input suppliers and institutional support providers were selected to collect the required information. To study the consumer preference for cashew and its products, 60 consumers were selected. Thus sample size was 264 respondents. Well-structured and pre tested questionnaire was used for collection of necessary information.



Fig-1: Map Showing Study area



Fig-2 Map showing cashew growing states in India

**Table- 2.1: Sampling frame**

<b>District</b>		<b>Sindhudurga</b>		<b>Ratnagiri</b>		<b>Total</b>
Taluks		Dodamarga	Sawanthwadi	Lanja	Rajapur	4
Farmers		30	30	30	30	120
Nurseries		2	2	2	2	8
Village traders/Commission Agents		10	10	10	10	40
Wholesale purchasers		2	2	2	2	8
Processors		2	2	2	2	8
Retail sellers		5	5	5	5	20
<b>Consumers</b>	<b>Bulk</b>	5	5	5	5	20
	<b>Individuals</b>	10	10	10	10	40
<b>Grand Total</b>		<b>66</b>	<b>66</b>	<b>66</b>	<b>66</b>	<b>264</b>

### **2.2.2 Nature and sources of the data**

The study utilized both primary and secondary data. The primary data relating to cost of production, price obtained by the farmers, channels followed in marketing of their produce, cost of marketing produce were obtained from the producers to study the cost of production, cost of marketing *etc.* Similarly, the data on costs incurred by the market functionaries in the marketing of the produce, price at which the commodity was purchased and sold *etc.* were collected in order to work out the margins obtained by each of them. The primary data was collected from the sample farmers and their awareness about marketing of cashew and market functionaries with the help of pre-tested well structured schedule. Data regarding the general information of cashew cultivators, area under cashew, age of the cashew orchard, number of plants, spacing, input use *etc.* and relevant information on other aspects like fixed assets, land use, cropping pattern, establishment and maintenance cost, yields and returns, quantity sold, price received, the marketing costs incurred by him, profit margin recorded and the problems faced by him in the production were collected through personal interview method. The farmers and various aspects of market intermediaries and the processors were personally interviewed to ensure that the data made available by them were clear, comprehensive and reasonably correct.

#### **1. Nature and Sources of Data**

For achieving the objectives of the study, both primary and secondary data were collected. Secondary data was collected from various sources like websites, Directorate of Agriculture, Maharashtra, Taluk level Zonal Agricultural office and other authenticated Government Departments in Maharashtra State. The secondary data for the study included time series data of districtwise and talukwise area, production and productivity under Cashew for selected Taluks, value addition, input supply, institutional support system, land utilization pattern, general information about selected taluks and village wise area under Cashew *etc.* Selling and purchase price of output by market intermediaries for the year 2016-17.

The primary data pertaining to the year 2016-17 is collected by using well structured and pre-tested schedule through a survey of sample respondents. The data related to general information about the respondents, family size, age, education, occupation, sources of income and land holding is obtained from them. The method of personal interview is used to elicit the data from the respondents regarding various inputs used, yields and returns from the intercrops during gestation period of the cashew. Details on the annual cost of cultivation

during bearing period, yield level and returns, method of sale and cost of marketing, cost of processing, channels followed in marketing of cashew, marketing cost and margin, value addition, consumer preference *etc* is collected and it is ensured that the data made available by the respondents is relevant, comprehensive and reasonably correct and precise.

## **2. Description of crop**

Cashew (*Anacardium Occidentale L.*), belonging to the *Anacardiaceae* family, native of tropical region of Brazil, was introduced to India by the Portuguese about five centuries ago as a means of controlling coastal erosion. It ranks third in the world production of edible tree nut. It has been well adapted to Indian conditions and is at home in the coastal regions of the country. Cashew as evergreen tree produces nuts and apples. It has attained much commercial importance, owing to the wide adaptability in varying agro climatic conditions. It has spread to some parts of tropical South and Central America, Mexico and the West Indies. Cashew is a spreading evergreen perennial tree grown up to 10-12 meter in height. It can be cultivated only in tropics preferably under warm and humid climate ( $25^{\circ}\text{C}$  to  $35^{\circ}\text{C}$  and high humidity). It can be cultivated from the sandy seacoast to laterite hill slopes up to 700 m sea level. It requires a minimum of 500mm rainfall per year but can withstand extremes of rainfall from 3000-4000mm.

The major factor limiting the distribution of cashew is its inability to tolerate frost and extreme cold for a long time. The best-suited soil for cashews is the deep well drained with a pH value ranging from 6.30 to 7.31. Red sandy loams and light coastal sands are also well suited for this tree. In India, the cashew tree is grown mainly on laterite, red and coastal sands in the federal states of Kerala, Karnataka, Maharashtra, Goa, Tamil Nadu, Andhra Pradesh, Orissa and West Bengal. Cashew normally flowers after 3 to 5 years of planting. Flowering period starts from the end of November till the end of January depending upon the climatic conditions. Flies, bees and ants as well as wind are the pollinating agents. Cashewnut contained corrosive liquid (oil) commercially known as cashew nut shell liquid (CNSL). It is a byproduct of the cashew industry having tremendous export potential. Inspire of this potential, a good portion of the CSNL still continues to be burnt as crude fuel in the local manufacturing units. The shell also contains an oily acidic liquid. In order to extract kernels, the raw nuts are either roasted or steamed to the right level and then passed over to the shelling section. The shells were classified as waste and used to be purchased only for the purpose of being burnt as fuel mainly at bakeries. Later it was discovered that the shells thrown away also contain a product that too has precious foreign exchange. The product was

called CSNL. As per the extraction statistics, the CSNL comprises one per cent of the weight of roasted shells and more than three per cent of the weight of steamed shells, though the volume of foreign exchange brought in by the CSNL is poor compared to that brought in by the kernels. The demand for CSNL remains much higher than kernels, especially from abroad. Because of its heat resistant and anti-corrosive nature, the CSNL is largely used in the paint industry and at some stage in rockets and also used in brake lining. At present, India has the capacity to export around 7,000 metric tons of CSNL. Each metric ton brings in foreign exchange worth 10,000. The U.S.A., Japan and South Korea are the major importers of the CSNL from India. Other major export destinations are Hong Kong, Malaysia and U.K. The cashew nut is about 2-4 cm long and kidney shaped grayish in color. It is attached to the fleshy peduncle (Cashew Apple) and thin skin between epicarp and endocarp wall of the shell is a honey comb structure which contains phenolic material commercially known as Cashew Nut Shell Liquid. Inside the shell kernel is wrapped in a thin brown skin known as the testa (Outer skin of Kernel).

**Analytical tools**

For the purpose of evaluating the objectives of the study, based on the nature and extent of data availability, the following analytical tools will be used for analyzing the data to draw meaningful results and conclusions.

1. Descriptive analysis
2. Compound annual growth rate analysis.
3. Garrets ranking technique

**Marketing cost**

The total cost incurred on marketing by producer seller and various intermediaries involved in sale and purchase of the commodity till it reaches the ultimate consumer was taken under this head (Acharya and Agarwal, 2006).

$$C = Cf + Cm1 + Cm2 + Cm3 + ..... + Cmi$$

Where,

C = Total cost of marketing of the commodity,

Cf = Cost incurred by the producer from the time the product leaves the particular stakeholder, and

C<sub>mi</sub> = Cost incurred by the i<sup>th</sup> middleman in the process of buying and selling the product.

### **Marketing margin**

As per Acharya and Agarwal (2006), marketing margin is the difference between receipts (sale price) of the i<sup>th</sup> middleman and total payment (costs + purchase price). Absolute margin of the i<sup>th</sup> middleman was worked out as per below equation:

$$A_{mi} = P_{Ri} - (P_{Pi} + C_{mi})$$

Where,

A<sub>mi</sub> = Absolute margin of the i<sup>th</sup> middleman,

P<sub>Ri</sub> = Total value of receipts per unit (sale price),

P<sub>Pi</sub> = Purchase value of goods per unit (purchase price), and

C<sub>mi</sub> = Cost incurred on marketing per unit.

### **Price spread**

Price spread was worked out separately for marketing channels identified in the study area. In general, price spread is defined as the difference between price paid by the consumer and price received by the producer for an equivalent quantity of farm produce. Price spread is calculated using the formula.

$$\text{Price spread} = \text{Consumer price} - \text{Producer's price}$$

### **Producer's share in consumer's rupee**

It is the price received by the farmer expressed as a percentage of the retail price (the price paid by the consumer). If P<sub>r</sub> is the retail price, the producer's share in consumer's rupee (P<sub>s</sub>) may be expressed as follows.

$$PS = (P_f / P_r) \times 100$$

### **Value Addition**

It reflects the difference between price for which a firm sold its products and the cost incurred on the purchased inputs by it. This difference represented the value addition by the productive activities of the firm (Kohls and Uhl, 1967).

$$\text{Value addition} = (\text{Selling price of the product}) - (\text{Cost of the total inputs})$$

### **Garret's ranking technique**

To find out major constraints in production of tomato by farmers, the Garret Ranking technique (Garret and Woodworth, 1969; Kathiravan et al. 1999 and Sedaghat, 2011) was

used. For finding out constraints, a schedule with open ended questions were developed. Various constraints were framed for the study keeping in view the reports from the available literature. The constraints were prioritized by using Garrett's ranking technique in the following manner:

$$\text{Percentage Position} = 100 (R_{ij} - 0.5) / N_j$$

Where,

$R_{ij}$  = Rank given for the  $i$ th item by the  $j^{\text{th}}$ , respondent and

$N_j$  = Number of items ranked by the  $j^{\text{th}}$ , respondent

The percentage position of each rank was converted into scores using Garret table. For each constraint, scores of individual respondents were added together and divided by total number of respondents for whom scores were added. Then, mean score for each constraint was ranked by arranging them in descending order.

### **III. MAJOR FINDINGS OF THE STUDY**

#### **3.1 Trends in area, production and productivity of cashew nut in India**

##### **3.1.1 States wise growth in area, production and productivity of Cashew nut in India**

The growth in area, production and productivity of Cashewnut in major cashew growing states in India for the study period from 2008-09 to 2016-17 was estimated using the exponential function and results are presented in the Table 1. It could be observed from the table that, the growth of area under cashew nut was found to be highest in Orissa (4.80 %) followed by Kerala (3.51 %), Karnataka (1.93 %), Maharashtra (1.49 %), Tamil Nadu (1.33 %) and Goa (0.86 %), where as the cashew nut production growth was highest in Karnataka (5.70 %) followed by West Bengal (2.60 %), Goa (2.40 %), Maharashtra (1.90 %) and Kerala (1.80 %). The productivity growth rates of Cashew nut during 2008-09 to 2016-17 was found to be positive and significant in Karnataka (3.29 %) followed by West Bengal (2.62 %) and Goa (1.53 %).

##### **3.1.2 Growth in area, production and productivity of Cashew nut in India and Maharashtra**

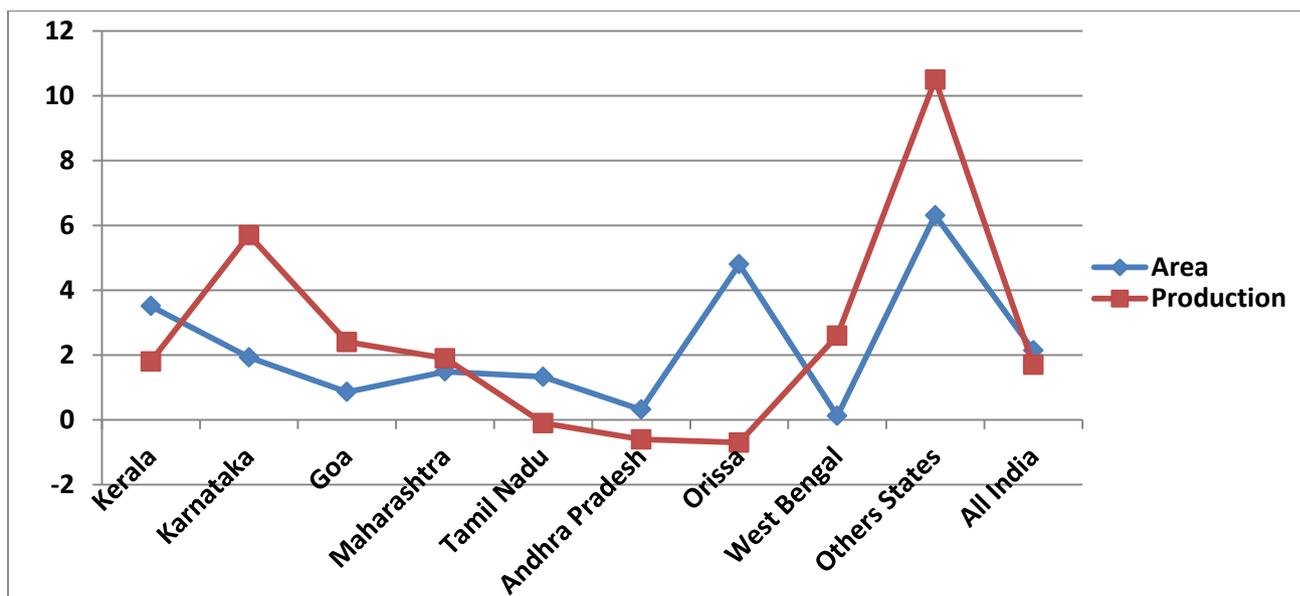
Growth in area, production and productivity of Cashew nut in India is presented in Table-2. Table shows that during 2001-02 India has produced 472 thousand tonnes of cashew in an area of 770 thousand tonnes with a productivity of 613 kg/ha. It is clearly observed that area, production and productivity are showing a positive trend over the years with a growth rate of 2.29, 3.02 and 0.71 per cent per year in area, production and productivity respectively. In 2016-17 India has produced 779 thousand tonnes of cashew in an area of 1041 thousand tonnes with a productivity of 748 kg/ha.

Growth in area, production and productivity of Cashew nut in India is presented in Table-3. Maharashtra during 2008-09 produced 225 thousand tonnes in an area of 170 thousand hectares with a productivity of 1323 kg/ha. In both areas production and productivity showing a positive growth over the years *i.e.*, 0.01, 0.015 and 0.005 per cent per year respectively. During 2016-17, Maharashtra has produced 256.61 thousand tonnes in an area of 186.20 thousand hectares with a productivity of 1378 kg/ha.

**Table - 1: State wise Growth in Area, Production and Productivity of Cashewnut in India during 2008-09 to 2016-17)**

Sl. No	Major States	Area	Production	Productivity
1	Kerala	3.51**	1.8**	-1.69*
2	Karnataka	1.93**	5.7**	3.71**
3	Goa	0.86*	2.4**	1.53
4	Maharashtra	1.49**	1.9**	0.44*
5	Tamil Nadu	1.33**	-0.1	-1.40
6	Andhra Pradesh	0.32*	-0.6	-0.96
7	Orissa	4.80**	-0.7	-5.29
8	West Bengal	0.12	2.6*	2.62*
9	Others States	6.31**	10.5**	3.95*
10	All India	2.14***	1.7**	-0.44

**Note: \*\*\*, \*\* & \* indicate significant levels at 1, 5 and 10 per cent respectively**

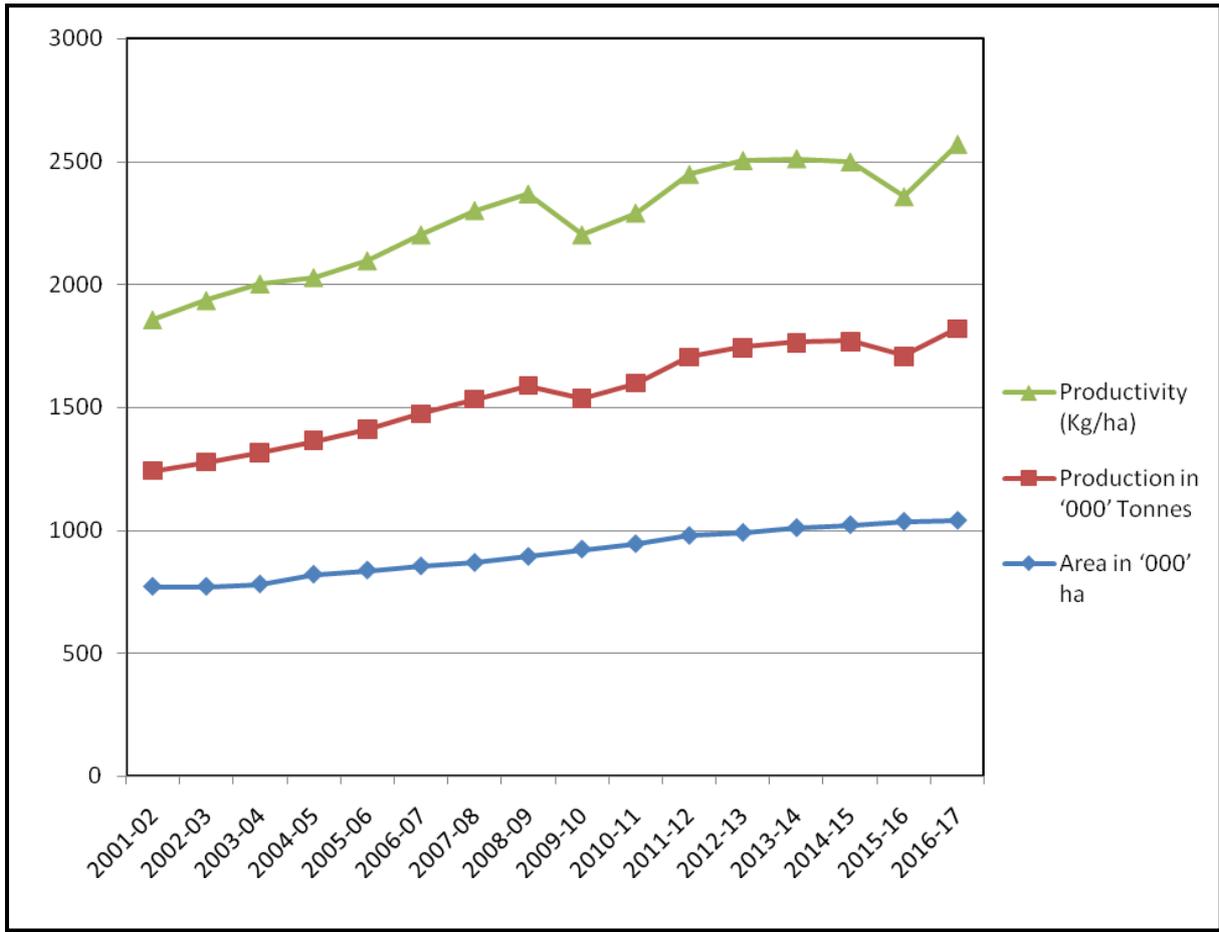


**Fig-3: Growth in Area, Production and Productivity of Cashew nut in India during 2008-09 to 2016-17)**

**Table - 2: Growth in area, production and productivity of Cashewnut in India (2001-02 to 2016-17)**

Sl. No	Year	Area in '000' ha	Production in '000' tonnes	Productivity (Kg/ha)
1	2001-02	770	472	613
2	2002-03	770	506	657
3	2003-04	780	535	686
4	2004-05	820	544	663
5	2005-06	837	573	685
6	2006-07	854	620	726
7	2007-08	868	665	766
8	2008-09	893	695	778
9	2009-10	923	613	664
10	2010-11	945	653	691
11	2011-12	979	725	741
12	2012-13	991	752	759
13	2013-14	1011	753	745
14	2014-15	1023	745	728
15	2015-16	1037	671	647
16	2016-17	1041	779	748
	<b>CAGR</b>	<b>2.29***</b>	<b>3.02***</b>	<b>0.71*</b>

Note: \*\*\*, \*\* & \* indicate significant levels at 1, 5 and 10 per cent respectively



**Fig-4: Growth in area, production and productivity of Cashewnut in India (2001-02 to 2016-17)**

**Table - 3: Area, production and productivity of Cashewnut in Maharashtra (2002-03 to 2016-17)**

<b>Sl. No</b>	<b>Year</b>	<b>Area (000 ha)</b>	<b>Production ('000MT)</b>	<b>Productivity (Kg/ha)</b>
1	2008-09	170	225	1323
2	2009-10	175	198	1186
3	2010-11	181	208	1231
4	2011-12	183	223	1282
5	2012-13	184.20	224.64	1282
6	2013-14	184.20	236.20	1317
7	2014-15	186.20	235	1262
8	2015-16	186.20	220	1200
9	2016-17	186.20	256.61	1378
	<b>CAGR</b>	0.010	0.015	0.005

### **3. 2Socio-Economic Profile of Cashewnut growers**

#### **3.2.1 General characteristics of sample farmers**

An understanding of general characteristics of sample farmers is expected to provide a bird's eye view of the general features prevailing in the study area. Therefore, an attempt has been made in the study to analyze some of the important socio-economic characteristics of the Cashewnut growers. The general characteristics of the respondents of Ratnagiri and Sindhudurga districts with respect to age, education, family size, land holdings and experience in cashew farming are presented in Table 4.

#### **3.2.2 Age of farmers**

From the Table 4, it could be seen that, in Ratnagiri district, majority of the farmers (60 %) were of medium aged followed by young aged (28.30 %) and old aged farmers (11.70 %), whereas in Sindhudurga district majority of the farmers were of medium aged (68.33 %) followed by young farmers (25.09%) and old aged farmers (6.76%).

#### **3.2.3 Education status**

Table-4 revealed that the majority of the respondents were educated in both the districts *i.e.* 85 per cent in Ratnagiri district and 91.77 per cent in Sindhudurga district. In Ratnagiri district nearly 32 per cent of the farmers had primary education followed by secondary and pre-university education by equal proportion of 20 per cent. Whereas in Sindhudurga district, nearly 42 per cent of the farmers had primary school education followed by secondary and pre-university education. Only 15 per cent in Ratnagiri district and 8.33 per cent in Sindhudurga district were illiterates. Education plays an important role in the adoption of innovations/new technologies and young farmers are expected to be early adopters.

#### **3.2.4 Family size**

The classification of sample households based on family size (Table-4) showed that in both Ratnagiri (46.67 %) and Sindhudurga (60%) districts most of the families were of medium sized.

#### **3.2.5 Land holding**

Table-4 represents the land holdings of sample Cashewnut growers. Most of the farmers in Ratnagiri district were of large farmers (46.67 %) followed by medium farmers (41.76 %) and small farmers (11.66 %). The average land holding of the sample farmers

was 10.43 ha, whereas in Sindhudurga district more than half of the sample farmers were of medium farmers (53.33 %) followed by small farmers (30%).

**Table-4: Socio-economic characteristics of Cashewnut growers in Konkan Maharashtra**

Sl. No.	Particular	Ratnagiri		Sindhudurga	
		No.	Per cent	No.	Per cent
<b>I</b>	<b>Age group (No.)</b>				
a.	Upto 35 years (young)	17	28.30	15	25.00
b.	35-50 years (medium)	36	60.00	41	68.33
c.	Above 50 years (old)	7	11.70	4	6.67
	<b>Total</b>	<b>60</b>	<b>100.00</b>	<b>60</b>	100.00
	Average age (year)	42	-	45	-
<b>II</b>	<b>Education Status</b>				
a.	Illiterate	9	15.00	5	8.33
b.	Primary	19	31.67	25	41.67
c.	Secondary	12	20.00	18	30.00
d.	PUC	12	20.00	8	13.33
e.	Degree	8	13.33	4	6.67
	<b>Total</b>	<b>60</b>	<b>100.00</b>	<b>60</b>	100.00
<b>III</b>	<b>Family size</b>				
a.	Small (upto 4)	8	13.33	15	25.00
b.	Medium (4-6)	28	46.67	36	60.00
c.	Large (>6)	24	40.00	9	15.00
	<b>Total</b>	<b>60</b>	<b>100.00</b>	<b>60</b>	100.00
<b>IV</b>	<b>Land holding (No)</b>				
a.	Small farmers (upto 2 ha)	7	11.66	18	30.00
b.	Medium farmers (2-5ha)	25	41.67	32	53.33
c.	Large farmers (>5 ha)	28	46.67	10	16.67
	<b>Total</b>	<b>60</b>	<b>100.00</b>	<b>60</b>	100.00
	Average land holding (ha)	10.43	--	6.26	

### 3.2.6 Experience of sample farmers in Cashewnut cultivation

Experience of sample farmers in Cashew nut cultivation is presented in table-5. In Ratnagiri district more than half of the sample farmers (63.33 %) had 10 to 20 years experience followed by 25 per cent of the farmers had more than 20 years and only 11.67 per cent of the farmers had less than 10 years of experience in Cashewnut cultivation, whereas in Sindhudurga district also majority of the farmers (71.67%) had 10 to 20 years of experience followed by 15 per cent of the farmers were having more than 20 years of experience.

**Table 5: Experience of sample farmers in Cashewnut cultivation**

SL. No.	Experience (Years)	Ratnagiri		Sindhudurga	
		No. of farmers	Per cent	No. of farmers	Per cent
1	<10	7	11.67	8	13.33
2	10-20	38	63.33	43	71.67
3	>20	15	25.00	9	15.00
	<b>Total</b>	<b>60</b>	<b>100.00</b>	<b>60</b>	<b>100.00</b>

### 3.2.7 Occupational pattern of sample respondents

Occupational pattern of the sample respondents is presented in table-6. It is observed from the table that in Ratnagiri district majority of the farmers had agriculture as the main occupation (86.67%) followed by agriculture plus business as the main occupation, whereas in Sindhudurga district also nearly 81.67 per cent of the farmers were having agriculture as the main occupation followed by agriculture plus business (11.67%).

**Table - 6: Occupation pattern of sample respondents in Maharashtra**

Sl. No.	Particulars	Ratnagiri		Sindhudurga	
		No.	Per cent	No.	Per cent
1	Agriculture	52	86.67	49	81.67
2	Agriculture +Business	6	10.00	7	11.67
3	Agriculture+ Service	2	3.33	4	6.66
	<b>Total</b>	<b>60</b>	<b>100.00</b>	<b>60</b>	<b>100.00</b>

### 3.3 Cost and returns in Cashewnut plantation

#### 3.3.1 Establishment Cost of Cashewnut plantation

Establishment cost of cashew is presented in table-7. It is found that total in Ratnagiri district establishment cost was found to be ₹ 50,996 which includes ₹ 21,581 of labour cost (42.32 %) and ₹ 29,415 of material cost (57.68 %), whereas in Sindhudurga district establishment cost was found to ₹ 56,675.75 of which labour cost was found to be ₹ 24,483.90 (43.20 %) and material cost was ₹ 32,191.85 (56.80 %).

**Table-7 Establishment Cost of Cashewnut plantation in Ratnagiri district of Maharashtra**

SL. No.	Particulars	Ratnagiri		Sindhudurga	
		Cost (₹)	Per cent	Cost (₹)	Per cent
<b>I.</b>	<b>Establishment Cost</b>				
A.	Labour Cost	21,581.30	42.32	24,483.90	43.20
B.	Material cost	29,414.20	57.68	32,191.85	56.80
	<b>Total Establishment Cost</b>	50,995.50	100.00	56,675.75	100.00
<b>II.</b>	<b>Maintenance cost (Recurring cost)</b>				
	II year	20,182.50	-	23,460.50	-
	III year	22,603.00	-	24,350.75	-
	IV year	25,542.00	-	26,640.00	-
	V year	28,373.00	-	30,235.50	-

#### 3.3.2 Maintenance cost of Cashewnut plantation during gestation period

The maintenance cost incurred by the Cashewnut growers in during the gestation period is presented in the Table-7. The results revealed that in Ratnagiri district, total maintenance cost was ₹20,182.50, ₹ 22,603, ₹ 25,542 and ₹ 28,373 during second, third, fourth and fifth years after cashew plantation establishment, whereas in Sindhudurga district total maintenance cost was ₹ 23,460.50, ₹ 24,350.75, ₹ 26,640 and ₹ 30,235.50 during second, third, fourth and fifth years after cashew plantation establishment.

### 3.3.3 Cost of cultivation of Cashewnut plantation (5<sup>th</sup> year onwards)

The cost of cultivation of Cashewnut in Ratnagiri district is presented in Table-8. The total cost incurred in cultivation of cashew plantation was found to be ₹ 53, 395 of which variable cost accounts ₹ 33,395 of which labour cost constitutes ₹ 12,243, material cost constitutes ₹16,130, interest on working capital @ seven per cent interest rate was ₹ 1986 and managerial cost @ 10 per cent on variable cost was ₹ 3036. Fixed cost was found to be ₹ 20,000 towards imputed value of owned land.

Whereas in Sindhudurga district, total cost incurred in cultivation of cashew plantation was found to be ₹ 64, 494 which includes variable cost of ₹ 38,954 of which labour cost constitutes ₹ 14,463, material cost constitutes ₹ 18,633, interest on working capital @ seven per cent interest rate was ₹ 2317 and managerial cost @ 10 on variable cost was ₹ 3541. Total fixed cost was ₹ 20,000 towards imputed value of owned land.

**Table-8: Cost of cultivation of Cashewnut plantation in Maharashtra (5<sup>th</sup> year onwards)**  
(Per ha)

Sl. No	Particulars	Ratnagiri		Sindhudurga	
		Cost	Per cent	Cost	Per cent
<b>I</b>	<b>Variable Cost</b>				
<b>A.</b>	<b>Labour Cost</b>	12,243	22.93	14,463	22.08
<b>B.</b>	<b>Material cost</b>	16,130	30.21	18,633	28.45
	<b>Total working capital</b>	28,373	53.14	33,096	50.53
	Interest on working capital @ 7.0 %	1986	3.72	2317	3.54
	Management cost (10 % on VC)	3036	5.69	3541	5.41
	<b>Total Variable Cost (A)</b>	<b>33,395</b>	<b>62.54</b>	<b>38,954</b>	<b>59.48</b>
<b>II</b>	<b>Fixed cost</b>				
1	Rent value of owned land	20,000	37.46	20,000	30.54
	<b>Total fixed cost (B)</b>	<b>20,000</b>	<b>37.46</b>	<b>20,000</b>	<b>30.54</b>
	<b>Total cost (A+B)</b>	<b>53,395</b>	<b>100.00</b>	<b>65,494</b>	<b>100.00</b>

### 3.3.4 Yield and returns realized in Cashewnut during bearing period (5<sup>th</sup> year onwards)

The sample Cashewnut growers harvested cashew fruits/nuts for a period of four months (February, March, April and May) in a year. The yields obtained and returns realized from the sale of Cashewnut are presented in the Table-9. It could be seen from the table that,

per ha quantity Cashewnut harvested in Ratnagiri district was 283 kg in February, 491 kg/ha in March, 585 kg/ha in April and 529 kg/ha in May and total of 1890 kg of raw Cashewnut per ha. Average price per kg of nuts obtained was ₹ 147.50. Farmers realized higher gross return of ₹ 2,78,775 and net return of ₹ 2,25,380 with return of ₹ 5.22 for every rupee of investment.

Whereas in Sindhudurga district yield returns obtained was 360 kg in February, 580 kg/ha in March, 680 kg/ha April and 630 kg/ha in May and total of 1890 kg of raw Cashewnut per ha. Average price per kg of nuts obtained was ₹ 153.20. Farmers realized higher gross return of ₹ 3,44,700 and net return of ₹ 2,79,206 with return of ₹ 4.26 for every rupee of investment.

**Table-9 Yields obtained and returns realized in Cashewnut (5<sup>th</sup> year onwards)**

Sl. No	Particulars	Per ha			
		Ratnagiri		Sindhudurga	
		Kg	Per cent	Kg	Per cent
<b>1.</b>	<b>Yield obtained in nuts</b>				
	a) February	283	15.00	360	16.00
	b) March	491	26.00	580	25.78
	c) April	585	31.00	680	30.22
	d) May	529	28.00	630	28.00
	<b>Total yield (Kg/ ha)</b>	<b>1890</b>	<b>100.00</b>	<b>2250</b>	<b>100.00</b>
<b>2.</b>	<b>Average price/kg of nuts</b>	147.50	-	153.20	-
<b>3.</b>	Gross returns (₹ )	2,78,775	-	3,44,700	-
<b>4.</b>	Cost of cultivation (₹ )	53,395	-	65,494	-
<b>5.</b>	<b>Net returns (₹ )</b>	<b>2,25,380</b>	-	<b>2,79,206</b>	-
	B-C Ratio	5.22:1	-	4.26:1	-

### 3.4 Preference of farmers for choosing a particular market

Preference of farmers for choosing a particular market is presented in Table-11. It revealed from the table that in Ratnagiri district better price (Rank I) was the major factor influenced the farmers in selecting a particular market followed by credit facility (Rank II), low transportation cost (Rank III), reliable market information (Rank IV), low commission

charge (Rank V), low cost of marketing (Rank VI), easy access to inputs (Rank VII), assured market (Rank VIII), influence by friends/relative/neighbors (Rank IX) and less physical loss (Rank X). In Sindhudurga district also better price (Rank I) was the major factor influenced the farmers in selecting a particular market followed by low transportation cost (rank II), low commission charge (rank III), credit facility (Rank IV), reliable market information (rank V) and so on.

**Table-11 Preference of farmers for choosing a particular market**

Sl. No.	Factors	Ratnagiri		Sindhudurga	
		Average Garret score	Rank	Average Garret score	Rank
1	Assured Market	40.82	8	40.30	8
2	Better price	76.75	1	79.12	1
3	Low transportation cost	59.37	3	64.85	2
4	Credit facility	59.65	2	56.18	4
5	Low commission charge	53.82	5	56.97	3
6	Reliable market information	55.50	4	52.45	5
7	Low cost of marketing	48.27	6	50.32	6
8	Easy access to Inputs	42.63	7	41.88	7
9	Influence by friends	30.28	9	30.30	9
10	Less Physical loss	28.07	10	27.63	10

### **3.5 Production constraints faced by Cashewnut producers**

The results presented in the Table-12 revealed that labour shortage during peak harvesting period was the major problem experienced by the farmers (Rank I), followed by Higher Initial investment (Rank II), Lack of technical knowledge (Rank III), Power cuts (Rank IV), Lack of financial support (Rank V), Lack of quality seedlings (Rank VI), Scarcity of water for irrigation (Rank VII), Pest and disease attack (Rank VIII) and Lack of Improved harvesting techniques (Rank IX). In Sindhudurga district also labour scarcity was the major problem (Rank I) followed by lack of quality seedlings (Rank II), high initial investment

(Rank III), lack of financial support from the financing agencies (Rank IV), incidence of pest and disease (Rank V) and so on.

**Table-12: Production constraints faced by Cashewnut producers**

Sl. No.	Factors	Ratnagiri		Sindhudurga	
		Average Garret score	Rank	Average Garret score	Rank
1	Lack of quality seedlings	50.55	6	71.85	2
2	Labour shortage	73.78	1	75.83	1
3	Higher Initial investment	67.02	2	61.30	3
4	Lack of technical knowledge	61.70	3	49.02	6
5	Lack of financial support	51.48	5	49.57	4
6	Power cuts	51.83	4	42.90	8
7	Scarcity of water	42.52	7	45.48	7
8	Pest and disease attack	40.90	8	49.47	5
9	Lack of Improved harvesting techniques	39.93	9	36.58	9

### 3.6 Marketing constraints faced by Cashewnut producers

The results regarding marketing constraints faced by Cashewnut producers presented in Table-13. In both Ratnagiri and Sindhudurga districts found similar marketing constraints i.e., poor market intelligence was the major problem experienced by the farmers (Rank I) followed by lack of storage facilities (Rank II), Non availability of market facility near farm (Rank III), Price fluctuation (Rank IV), Financial support for marketing (Rank V), Delay in payment after sale (Rank VI), High transportation cost (Rank VII), High market fee (Rank VIII) and High commission charges (Rank IX).

**Table-13: Marketing constraints faced by Cashew nut producers**

Sl. No.	Factors	Ratnagiri		Sindhudurga	
		Average Garret score	Rank	Average Garret score	Rank
1	Poor market intelligence	74.70	1	75.52	1
2	Lack of storage facilities	67.97	2	67.13	2
3	Non availability of market facility	60.08	3	62.02	3
4	Price fluctuation	54.43	4	57.33	4
5	Financial support for marketing	50.88	5	50.67	5
6	Delay in payment after sale	49.55	6	49.17	6
7	High transportation cost	41.48	7	40.87	7
8	High commission charges	40.65	9	40.63	8
9	High market fee	41.25	8	38.58	9

**3.7 Marketing of raw Cashewnut by farmers in Maharashtra**

Results regarding the marketing of raw Cashewnut by farmers are presented in table-10. It is observed from the table that in Ratnagiri district nearly half of the farmers (46.67%) sold their produce directly to the processing units since they fetched higher price followed by wholesalers (20%), village traders (18.33%), Co-operatives (10%) and only few farmers sold at Banda market (5%). Among different purchasing agents farmers got relatively higher price in co-operative societies and modal price in Ratnagiri district was ₹147.20 per kg. Whereas in Sindhudurga district nearly one third of the farmers (31.33%) sold their produce at Banda market because higher prices followed by wholesalers (26.67%), processing units (25%) and village traders (16.67%). In Banda market farmers got higher price comparatively than other agents (₹ 160/kg) and modal price in the district was ₹153.20 per kg.

**Table 10 Marketing of raw Cashewnut by Farmers in Maharashtra state****(n=120)**

<b>Sl. No.</b>	<b>To whom sold</b>	<b>Ratnagiri</b>			<b>Sindhudurga</b>		
		<b>No. of farmers</b>	<b>Per cent</b>	<b>Mode Price/kg</b>	<b>No. of farmers</b>	<b>Per cent</b>	<b>Mode Price/kg</b>
1	Village traders	11	18.33	140	10	16.67	145
2	Wholesalers	12	20.00	145	16	26.67	150
3	Processing units	28	46.67	150	15	25.00	155
4	Co-operative societies	6	10.00	151	0	-	-
5	Banda Market	3	5.00	150	19	31.33	160
	<b>Total</b>	<b>60</b>	<b>100.00</b>	<b>147.20</b>	<b>60</b>	<b>100.00</b>	<b>153.20</b>

### **3.8 General profile of the village traders**

Results regarding the profile of the village traders are presented in table-14. It is observed from the table that in Ratnagiri district most of the village traders were well experienced (50%) followed highly experienced (30%). All the village traders were having license. All the traders were procuring raw cashew from farmers directly at prevailing market price. About 80 per cent of the traders were making payment to the farmers during the purchase time only (on spot payment). About 80 per cent of them expressed that they did not get access to information technology regarding price and market arrivals of cashew. Most of them sold raw cashew on bulk to the wholesalers.

Whereas in Sindhudurga district half of the village traders were highly experienced (50%) followed by well experienced (40%). All the village traders were having license. Most of the traders (80%) were procuring raw cashew from farmers directly at prevailing market price. About 60 per cent of the traders were making payment to the farmers during the purchase time only (on spot payment) followed by half payment at purchasing time. All of them expressed that they did not get access to information technology regarding price and market arrivals of cashew. Most of them sold raw cashew on bulk to the wholesalers (60%).

**Table-14 General profile of the village traders****(n=20)**

Particulars	Ratnagiri		Sindhudurga	
	Nos.	Per cent	Nos.	Per cent
1.Years of Experience				
a) <5 years (experienced)	2	20.00	1	10.00
b) 5-10 years (well experienced)	5	50.00	4	40.00
c) >10years (highly experienced)	3	30.00	5	50.00
<b>Total</b>	<b>10</b>	<b>100.00</b>	<b>10</b>	<b>100.00</b>
2.Licence holder				
a) Yes	10	100.00	10	100.00
b) No	0	0.00	0	0.00
<b>Total</b>	<b>10</b>	<b>100.00</b>	<b>10</b>	<b>100.00</b>
3.Mode of Purchasing				
a) Direct purchase at market price	10	100.00	8	80.00
b) open auction	0	0.00	0	0.00
c) contract basis	0	0.00	2	20.00
<b>Total</b>	<b>10</b>	<b>100.00</b>	<b>10</b>	<b>100.00</b>
4.Mode of payment to the farmers				
a) On spot payment	8	80.00	6	60.00
b) 50% at the time of sale	2	20.00	4	40.00
c) Future payment	0	0.00	0	0.00
<b>Total</b>	<b>10</b>	<b>100.00</b>	<b>10</b>	<b>100.00</b>
5.Access to information technology regarding price and market arrivals				
a) Yes	2	20.00	0	0.00
b) No	8	80.00	10	100.00
<b>Total</b>	<b>10</b>	<b>100.00</b>	<b>10</b>	<b>100.00</b>
6.To whom produce sell				
a) Processors	2	20.00	0	0.00
b) Wholesalers	7	70.00	6	60.00
c) Banda market	1	10.00	4	40.00
<b>Total</b>	<b>10</b>	<b>100.00</b>	<b>10</b>	<b>100.00</b>

**3.9 General profile of the wholesalers**

Results regarding the profile of the wholesalers are presented in table-15. It is observed from the table that, in Ratnagiri district most of the wholesalers were highly experienced (50%) followed by an equal number of experienced and well experienced. Half

of the wholesalers were performing purchase as well as commission agents. About 75 per cent of the wholesalers were having storage facilities. All the wholesale traders were having license. All the traders were procuring raw cashew at prevailing market price. About 75 per cent of the traders were making payment to the farmers during the purchase time only (on spot payment). Most of them sold raw cashew on bulk to the processors.

Whereas in Sindhudurga district half of the wholesalers were highly experienced (75%) followed by well experienced (25%). Most of the wholesalers (75%) were performing only purchase function. About 50 per cent of the wholesalers were having storage facilities another 50 per cent did not have storage facilities. All the wholesale traders were having license. All the traders were procuring raw cashew at prevailing market price. About equal number of the traders were making payment to the farmers during the purchase time (on spot payment) and 50 per cent payment at purchasing time. About 50 per cent of them sold raw cashew on bulk to the processors and another 50 per cent of them at Banda market.

**Table-15 General profile of raw Cashewnut wholesale purchasers**

(n=8)

Particulars	Ratnagiri		Sindhudurga	
	Nos.	Per cent	Nos.	Per cent
1. Years of experience				
a) <5 years (experienced)	1	25.00	0	0.00
b) 5-10 years (well experienced)	1	25.00	1	25.00
c) >10years (highly experienced)	2	50.00	3	75.00
<b>Total</b>	<b>4</b>	<b>100.00</b>	<b>4</b>	<b>100.00</b>
2. Function of Commission agent				
a) Only wholesaler	1	25.00	3	75.00
b) Wholesaler + Commission agent	2	50.00	0	0.00
c) Wholesaler + Retailer	0	0.00	0	0.00
d) Wholesaler + Processor	1	25.00	1	25.00
<b>Total</b>	<b>4</b>	<b>100.00</b>	<b>4</b>	<b>100.00</b>
3. Type of shop				
a) With storage facilities	1	25.00	2	50.00
b) Without storage facilities	3	75.00	2	50.00
<b>Total</b>	<b>4</b>	<b>100.00</b>	<b>4</b>	<b>100.00</b>
4. License holder				
a) Yes	4	100.00	4	100.00
b) No	0	0.00	0	0.00
<b>Total</b>	<b>4</b>	<b>100.00</b>	<b>4</b>	<b>100.00</b>
5. Mode of Trading				
a) Direct purchase at market price	4	100.00	4	100.00
b) Open auction	0	0.00	0	0.00
c) Contract basis	0	0.00	0	0.00
<b>Total</b>	<b>4</b>	<b>100.00</b>	<b>4</b>	<b>100.00</b>
6. Mode of payment to the farmers				
a) On spot payment	3	75.00	2	50.00
b) 50% at the time of sale	1	25.00	2	50.00
c) Future payment	0	0.00	0	0.00
<b>Total</b>	<b>4</b>	<b>100.00</b>	<b>4</b>	<b>100.00</b>
1. To whom produce sell				
a) Processors	3	75.00	2	50.00
b) Other wholesalers	0	0.00	0	0.00
c) Banda market	1	25.00	2	50.00
<b>Total</b>	<b>4</b>	<b>100.00</b>	<b>4</b>	<b>100.00</b>

**3.10 General profile of the processors**

Results regarding the profile of the wholesalers are presented in table-16. It is observed from the table that most of the processors in both the districts were registered. In Ratnagiri district about 50 per cent of them are sole proprietors. On an average present

establishment cost of processing unit was found to be ₹ one crore. On an average production capacity of the sample processors was found to be 2t/day and actual processing capacity was found to be 1.5t/day. About an equal per cent of the processors opined that they procure raw cashew mostly from wholesalers and from Banda market. Most of the processors cleared payments during purchasing time only. About 50 per cent of them had storage facility and another 50 per cent did not have storage facilities. Most of them sold processed cashew to the wholesalers (75%).

In Sindhudurga district about 75 per cent of the processors were running unit on partnership basis. On an average present establishment cost of processing unit was found to be ₹ one crore. On an average production capacity of the sample processors was found to be 2 t/day and actual processing was found to be 1.50 t/day. Most of them(75%) opined that they procure raw cashew mostly from Banda market. About 50 per cent of them processors cleared payments during purchasing time and remaining processors made payment at 50 per cent during purchase and another 50 per cent payment in future. About 75 per cent of them had storage facility and another 25 per cent did not have storage facilities. Most of them sold processed cashew to the wholesalers (75%).

**Table-16 General profile of processors**

(n=8)

Particulars	Ratnagiri		Sindhudurga	
	Nos.	Per cent	Nos.	Per cent
1. Registered				
a) Yes	4	100.00	4	100.00
b) No	0	0.00	0	0.00
<b>Total</b>	<b>4</b>	<b>100.00</b>	<b>4</b>	<b>100.00</b>
2. Type of ownership		0.00		0.00
a) Single	2	50.00	1	25.00
b) Partnership	1	25.00	3	75.00
c) Cooperative	1	25.00	0	0.00
<b>Total</b>	<b>4</b>	<b>100.00</b>	<b>4</b>	<b>100.00</b>
3. Present establishment cost (₹)	<b>1 crore</b>	-	<b>1 crore</b>	-
4. Production capacity of the plant (t/day)	1.50	-	2.00	-
5. Actual production (t/day)	1.25	-	1.50	-
6. Processing cost (₹/tonne)	1750	-	1500	-
7. Sources of Purchase				
a) Contract with farmers	0	0.00	0	0.00
b) Wholesalers	2	50.00	1	25.00
c) Village traders	0	0.00	0	0.00
d) Direct purchase from Banda market	2	50.00	3	75.00
<b>Total</b>	<b>4</b>	<b>100.00</b>	<b>4</b>	<b>100.00</b>
8. Mode of payment to the farmers		0.00		0.00
a) On spot payment	3	75.00	2	50.00
b) 50% at the time of sale	1	25.00	2	50.00
c) Future payment	0	0.00	0	0.00
<b>Total</b>	<b>4</b>	<b>100.00</b>	<b>4</b>	<b>100.00</b>
9. Storage facility		0.00		0.00
a) Yes	2	50.00	3	75.00
b) No	2	50.00	1	25.00
<b>Total</b>	<b>4</b>	<b>100.00</b>	<b>4</b>	<b>100.00</b>
10. To whom products sell		0.00		0.00
a) Retailers	0	0.00	0	0.00
b) Wholesalers	3	75.00	3	75.00
c) Export	1	25.00	1	25.00
<b>Total</b>	<b>4</b>	<b>100.00</b>	<b>4</b>	<b>100.00</b>

### 3.11 Marketing cost incurred, margins realized by market intermediaries

Results regarding the marketing cost incurred and margins realized by market intermediaries are presented in table-17. It is observed from the table that in Ratnagiri district village traders purchased raw Cashewnut from farmers at ₹ 560 for four kg nuts. Marketing cost incurred by him is found to be ₹ 5 and margin realized by him is ₹ 15 and sold the cashew nut to wholesalers for ₹ 580. The wholesaler purchasing price was found to be ₹ 580, marketing cost incurred by him was ₹ 6.50, margins realized were ₹ 15.50 and selling price was found to be ₹ 602. In the same way Co-operative units purchasing price was ₹ 602, cost incurred was ₹ 2, margin realized was ₹ 14 and selling prices was ₹ 620. Processors purchasing price was ₹ 620, processing cost realized by them was ₹ 126 and marketing margin realized was ₹ 140 and selling price of cashew kernel after processing was ₹ 886. The wholesaler purchasing price was ₹ 886, cost incurred was ₹ 22, margin realized by them was ₹ 116 and selling price was ₹ 1024. Finally retailer purchased at ₹ 1024, cost incurred was ₹ 26, margin realized by him was ₹ 150 and selling price was found to be ₹ 1200. This is the consumer's price also. Here the total price spread was found to be ₹ 640 and producer's share consumer rupee was found to be 46.66 per cent.

In Sindhudurga district village traders purchased raw Cashewnut from farmers at ₹ 580 for four kg nuts. Marketing cost incurred by him is found to be ₹ 5 and margin realized by him is ₹ 15 and sold the cashewnut to wholesalers for ₹ 600. The wholesaler purchasing price was found to be ₹ 600, marketing cost incurred by him was ₹ 6, margins realized were ₹ 14 and selling price was found to be ₹ 620. Processors purchasing price was ₹ 620, processing cost realized by them was ₹ 120 and marketing margin realized was ₹ 160 and selling price of cashew kernel after processing was ₹900. The wholesaler purchasing price was ₹900, cost incurred was ₹ 20, margin realized by them was ₹120 and selling price was ₹ 1040. Finally retailer purchased at ₹ 1040, cost incurred was ₹ 25, margin realized by him was ₹ 135 and selling price was found to be ₹ 1200. This is also known as the consumer's price. Here the total price spread was found to be ₹ 620 and producer's share consumer rupee was found to be 48.33 per cent.

**Table-17 Marketing cost incurred and margins realized by market intermediaries**

Market middlemen	Ratnagiri	Sindhudurga
<b>1. Village traders</b>		
Purchased price (₹/kg)	560*	580*
Marketing cost (₹)	5	5
Marketing margin (₹)	15	15
Selling price (₹)	580	600
<b>2. Wholesalers</b>		
Purchased price (₹/kg)	580	600
Marketing cost (₹)	6.50	6
Marketing margin (₹)	15.50	14
Selling price (₹)	602	620
<b>3. Co-operatives</b>		
Purchased price (₹/kg)	604	-
Marketing cost (₹)	2	-
Marketing margin (₹)	14	-
Selling price (₹)	620	-
<b>4. Processing units</b>		
Purchased price (₹/kg)	620	620
Processing cost (₹)	126	120
Marketing margin (₹)	140	160
Selling price (₹)	886	900
<b>5. Wholesalers</b>		
Purchased price (₹/kg)	886	900
Marketing cost (₹)	22	20
Marketing margin (₹)	116	120
Selling price (₹)	1024	1040
<b>6. Retailers</b>		
Purchased price (₹/kg)	1024	1040
Marketing cost (₹)	26	25
Marketing margin (₹)	150	135
Selling price (₹)	1200	1200

**Note:** \* indicates price for four kg raw nuts since four kg raw nuts to be required to get one kg kernel.

### 3.12 Constraints faced by village traders

Results regarding the constraints faced by village traders are presented in the table-18. It is observed that in Ratnagiri district most of the village traders opined that lack of sufficient produce was the major constraint faced by them followed by lack of market place, transportation problem, storage facility, restriction by the government in terms of rules and regulations and so on. In Sindhudurga district also scarcity of raw material was the major problem followed by market place, restriction by the government in terms of rules and regulations, transportation problem, storage facility and so on.

**Table-18 Constraints faced by village traders**

Sl. No.	Constraints	Ratnagiri	Sindhudurga
		Rank	Rank
1	Less produce	2	2
2	Storage	1	1
3	Market Place	4	4
4	Rules & Regulation of Agricultural Marketing	5	3
5	Fee & Cess	7	6
6	Labour shortage	6	7
7	Transportation	3	5

### 3.13 Constraints faced by wholesalers

Results regarding the constraints faced by wholesalers are presented in the table-19. It is observed that in Ratnagiri district most of the wholesalers opined that lack of sufficient produce is the major constraint faced by them followed by storage, import policy of raw cashew, market place, restriction by the government in terms of rules and regulations and labour shortage so on. In Sindhudurga district also scarcity of raw material was the major problem followed by excess fee and taxes, import policy of raw cashew, storage, market place, restriction by the government in terms of rules and regulations, labour shortage and transportation problem.

**Table-19 Constraints faced by Wholesalers**

Sl. No.	Constraints	Ratnagiri	Sindhudurga
		Rank	Rank
1	Import policy of raw cashew	3	3
2	Less produce in the market	1	1
3	Storage	2	4
4	Market Place	4	5
5	Rules & Regulation of Agricultural Marketing	5	6
6	Fee & Cess	8	2
7	Labour shortage	6	7
8	Transportation	7	8

**3.14 Constraints faced by processors**

Results regarding the constraints faced by processors are presented in the table-20. It is observed that in Ratnagiri district most of the processors opined that shortage of capital was the major constraint faced by them followed by lack of sufficient produce during off season, storage, market place, restriction by the government in terms of rules and regulations and fee and cess and so on. In Sindhudurga district also shortage of capital was the major problem followed by scarcity of raw material, market place, storage, restriction by the government in terms of rules and regulations, fee and cess, labour shortage and so on.

**Table-20 Constraints faced by Processors**

Sl. No.	Constraints	Ratnagiri	Sindhudurga
		Rank	Rank
1	Working/Recurring capital	1	1
2	Shortage of raw materials	2	2
3	Storage structure	3	3
4	Market Place	4	5
5	Rules & Regulation of Market	5	4
6	Fee & cess	6	7
7	Labour shortage	7	6
8	Transportation	8	8

**3.16 Price spread in various marketing channels**

Results of price spread in various marketing channels of cashew are presented in table-21 and table-22. It is observed from the table that in Ratnagiri district in Channel-I (Producer-->village traders-->raw Cashewnut wholesalers-->processors->cashew

wholesalers-->retailers-->consumers) price spread was found to be ₹ 640 which were highest among all the channels and producer's share in consumer rupee was found to be 46.66 per cent. In Channel-II (Producer-->raw cashew nut wholesalers-->Cooperative societies-->processors-->cashew wholesalers-->retailers-->consumers) price spread was found to be ₹ 620 and producer's share consumer rupee was found to be 48.33 per cent. In Channel-III (Producer-->Cooperative societies-->processors--> cashew wholesalers-retailers-consumers) price spread was found to be ₹ 596 and producer's share consumer rupee was found to be 50.33 per cent. In Channel-IV (Producer-->processors--> cashew wholesalers-retailers-consumers) price spread was found to be ₹ 600 and producer's share in consumer rupee was found to be 50 per cent.

Whereas in Sindhudurga district in Channel-I (Producer-->village traders-->raw Cashewnut wholesalers-->processors->cashew wholesalers-->retailers-->consumers) price spread was found to be ₹ 620 which is highest among all the channels and producer's share in consumer rupee was found to be 48.33 per cent. In Channel-II (Producer-->raw cashew nut wholesalers-->Cooperative societies-->processors-->cashew wholesalers-->retailers-->consumers) price spread was found to be ₹ 600 and producer's share in consumer rupee was found to be 50 per cent. In Channel-III (Producer-->processors--> cashew wholesalers-retailers-consumers) price spread was found to be ₹ 580 and producer's share consumer rupee was found to be 51.66 per cent.

**Table-21 Price spread in Cashewnut in Ratnagiri district of Maharashtra**

	<b>Particulars</b>	<b>Channel –I</b>	<b>Channel -II</b>	<b>Channel –III</b>	<b>Channel-IV</b>
<b>I</b>	<b>Producers(₹)</b>				
	Price received	560*	580*	604*	600*
	Marketing costs		7	7	7
	Cost of production	28.25	28.25	28.25	28.25
	Net price received	531.75	544.75	568.75	564.75
<b>II</b>	<b>Village traders(₹)</b>				
	Purchase price	560			
	Costs	5.20			
	Margins	14.80			
	Sale price	580			
<b>III</b>	<b>Raw cashew wholesalers (₹)</b>				
	Purchase price	580	580		
	Costs	6.50	6.50		
	Margins	15.50	17.50		
	Sale price	602	604		
<b>IV</b>	<b>Cooperative societies(₹)</b>				
	Purchase price		604	604	
	Costs		2	2	
	Margins		14	14	
	Sale price		620	620	
<b>V</b>	<b>Processors(₹)</b>				
	Purchase price	602	620	620	600
	Costs of processing	126	126	126	126
	Margins	154	140	140	156
	Sale price	882	886	886	886
<b>VI</b>	<b>Wholesalers(₹)</b>				
	Purchase price	882	886	886	886
	Costs	22	22	22	22
	Margins	120	116	116	116
	Sale price	1024	1024	1024	1024
<b>VII</b>	<b>Retailers(₹)</b>				
	Purchase price	1024	1024	1024	1024
	Costs	26	26	26	26
	Margins	150	150	150	150
	Sale price	1200	1200	1200	1200
	<b>Price spread</b>	640	620	596	600
	<b>Producer's share in consumer's rupee (%)</b>	46.67	48.33	50.33	50.00

**Channel-I**

Producer-->village traders-->raw Cashewnut wholesalers-->processors-->cashew wholesalers-->retailers-->consumers

**Channel-II**

Producer-->raw cashew nut wholesalers-->Cooperative societies-->processors-->cashew wholesalers-->retailers-->consumers

**Channel-III**

Producer-->Cooperative societies-->processors--> cashew wholesalers-retailers-consumers

### Channel-IV

Producer-->processors--> cashew wholesalers-retailers->consumers

### Share of different agents in consumer's price in Ratnagiri district

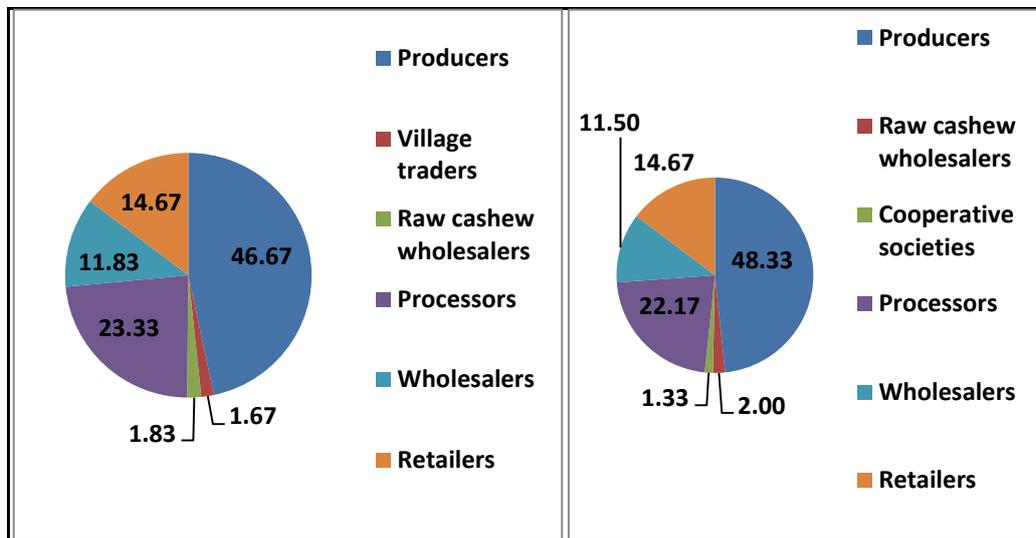


Fig-5 Channel-I

Fig-6 Channel-II

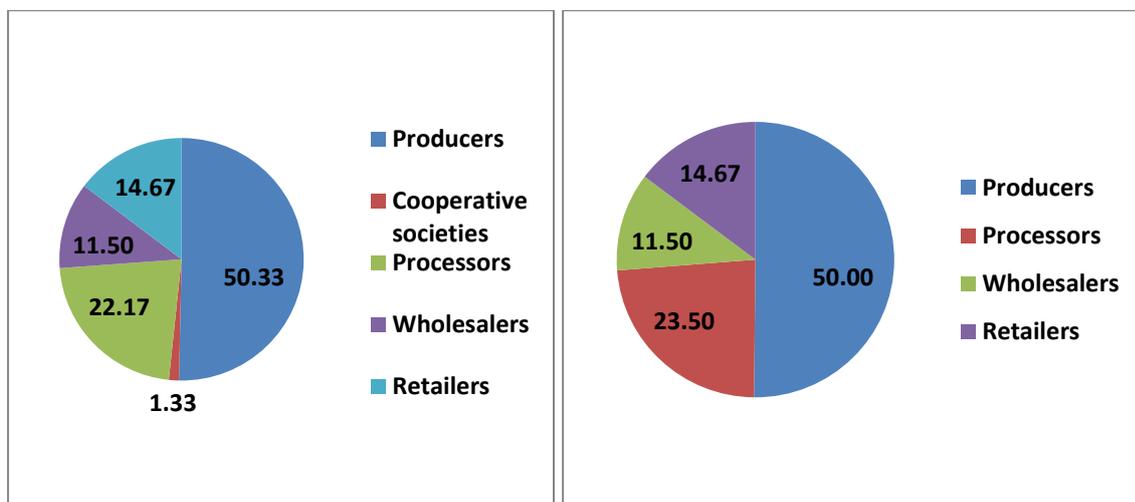


Fig-7 Channel-III

Fig-8 Channel-IV

**Table-22 Price spread in Cashewnut in Sindhudurga district of Maharashtra.**

	<b>Particulars</b>	<b>Channel – I</b>	<b>Channel – II</b>	<b>Channel – III</b>
<b>I</b>	<b>Producers(₹)</b>			
	Price received	580*	600*	620*
	Marketing costs		7.00	7.00
	Cost of production	29.10	29.10	29.10
	Net price received	550.90	563.90	583.90
<b>II</b>	<b>Village traders(₹)</b>			
	Purchase price	580		
	Costs	5		
	Margins	15		
	Sale price	600		
<b>III</b>	<b>Raw cashew wholesalers(₹)</b>			
	Purchase price	600	600	
	Costs	6	6	
	Margins	14	14	
	Sale price	620	620	
<b>IV</b>	<b>Processors(₹)</b>			
	Purchase price	620	620	620
	Costs of processing	120	120	120
	Margins	160	160	160
	Sale price	900	900	900
<b>V</b>	<b>Wholesalers(₹)</b>			
	Purchase price	900	900	886
	Costs	20	20	20
	Margins	120	120	116
	Sale price	1040	1040	1040
<b>VI</b>	<b>Retailers(₹)</b>			
	Purchase price	1040	1040	1040
	Costs	25	25	25
	Margins	135	135	135
	Sale price	1200	1200	1200
	<b>Price spread(₹)</b>	620	600	580
	<b>Producer's share in consumer's rupee (%)</b>	48.33	50.00	51.66

Note: \* indicates price for four kg raw nuts since four kg raw nuts to be required to get one kg kernel.

**Channel-I**

Producer-->village traders-->raw Cashewnut wholesalers-->processors->cashew wholesalers->retailers-->consumers

**Channel-II**

Producer-->raw cashew nut wholesalers-->processors-->cashew wholesalers-->retailers-->consumers

**Channel-III**

Producer-->processors—> cashew wholesalers-retailers-consumers.

Share of different agents in consumer's price in Sindhudurga district

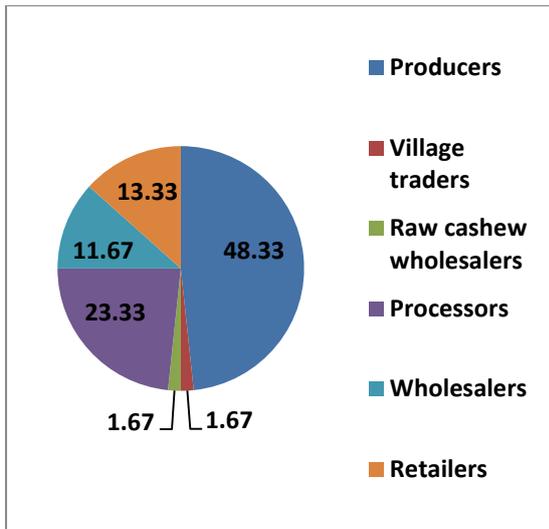


Fig-9 Channel-I

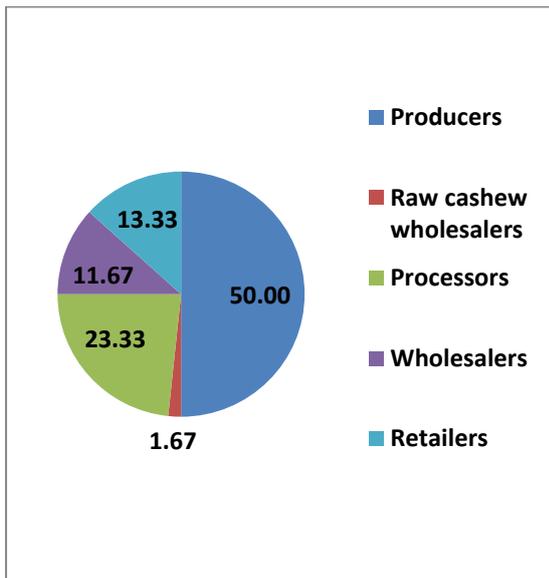


Fig-10 Channel-II

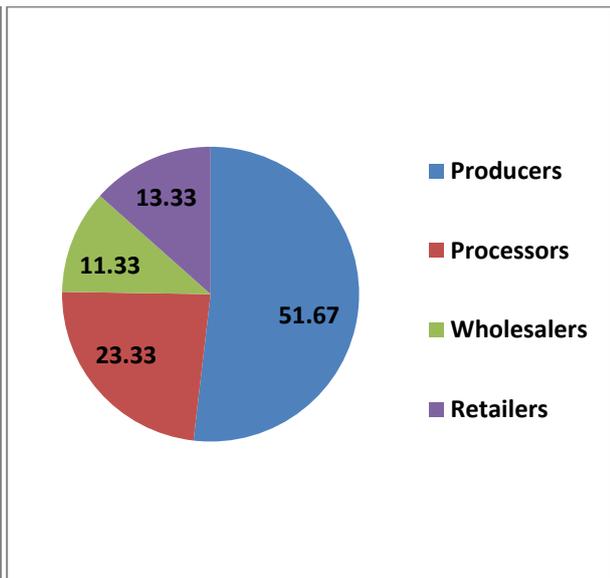
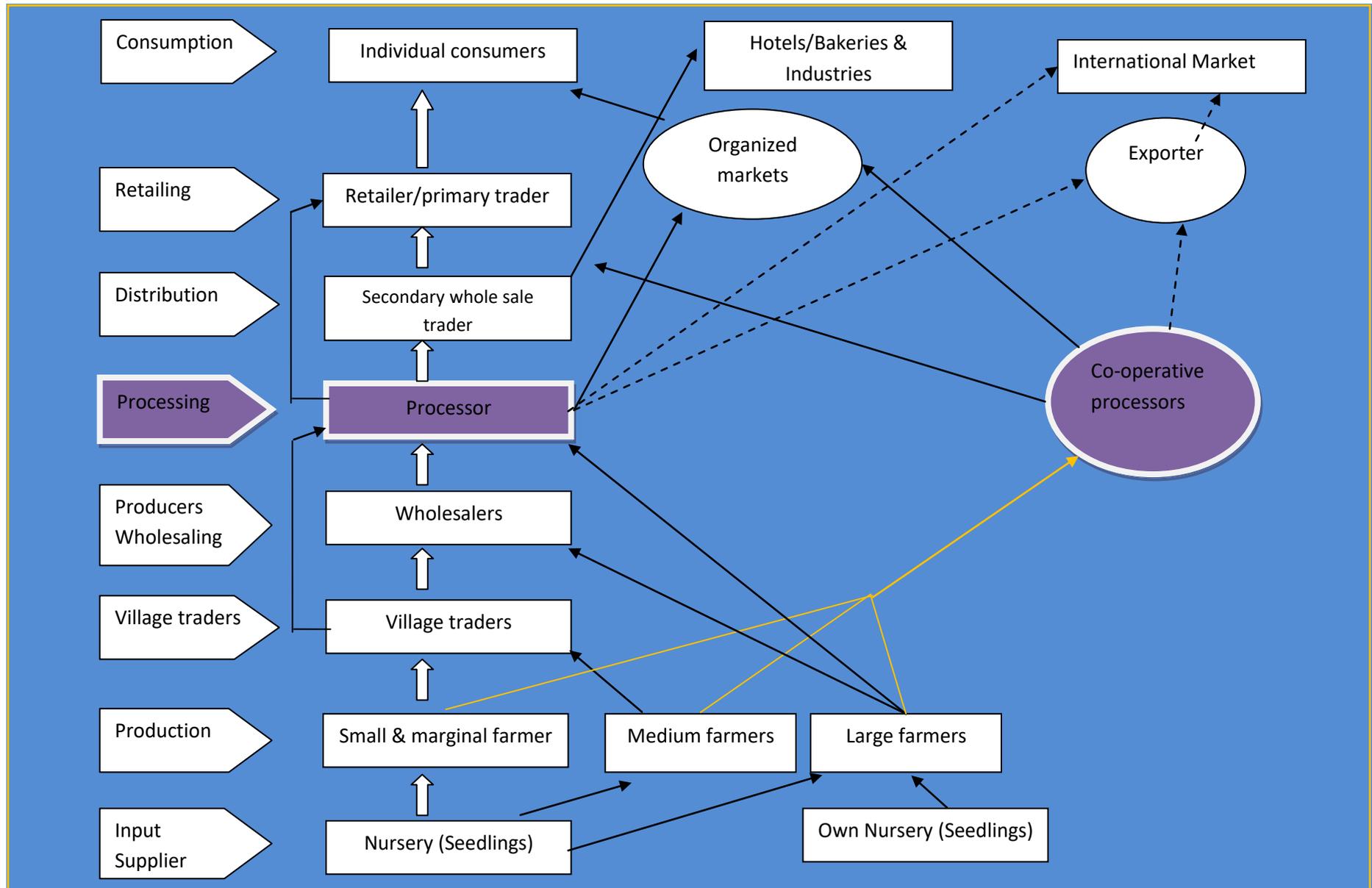


Fig-11 Channel-II



**Fig-12: Value chain map of Cashewnut**

## **IV. SUMMARY AND POLICY IMPLICATIONS**

Cashew production provides excellent opportunities in raising the income of the farmers even in the dry tracts. A significant shift towards horticulture crop especially Cashew is evident in India and Maharashtra state with an increase in area and production. Cashewnut provides higher unit productivity and offers a great scope for value addition and this sector is taking in roads throughout the length and breadth of the state. Cashewnut is such a crop which would serve as a source of income in terms of both raw material and value added products. Keeping in view, the importance of cashew in the Indian economy in general and its major growing states in particularly, the present study made an attempt to analyze the value chain of cashew in Konkan region of Maharashtra with the following specific objectives;

### **4.1 Specific objectives:**

2. To analyze the trends in area, production, productivity and export of cashew nut.
3. To map the Cashew nut value chain in Maharashtra.
4. To estimate the marketing costs and marketing efficiency in the Cashew nut value chains.
5. To estimate the product-wise value addition in processing of cashew nut.
6. To determine the constraints and opportunities (including investment) at each stage of Cashew nut value chain.
7. To document assistances availed through various government schemes by the Stakeholders

## 4.2 Major findings of the study

- The growth of area under cashew nut was found to be highest in Orissa (4.80 %) followed by Kerala (3.51 %), Karnataka (1.93 %), Maharashtra (1.49 %), Tamil Nadu (1.33 %) and Goa (0.86 %), where as the cashew nut production growth was highest in Karnataka (5.70 %) followed by West Bengal (2.60 %), Goa (2.40 %), Maharashtra (1.90 %) and Kerala (1.80 %).
- It was observed that, the area, production and productivity under Cashewnut in India recorded a growth rate of 2.29, 3.02 and 0.71 per cent per year. Maharashtra recorded 0.01, 0.015 and 0.005 per cent in area, production and productivity respectively.
- During 2008-09 Maharashtra state produced 225 thousand tonnes in an area of 170 thousand hectares with a productivity of 1323 kg/ha. During 2016-17, it produced 256.61 thousand tonnes in an area of 186.20 thousand hectares with a productivity of 1378 kg/ha.
- It was found that, majority of the farmers both in Ratnagiri (60 %) and Sindhudurga are of medium aged (68.33 %) followed by old aged.
- Majority of the respondents in Ratnagiri district were educated (85 %) of which 31.67 per cent of the farmers had primary education followed by secondary education. Whereas in Sindhudurga district also Majority of them is educated, nearly 42 per cent of the farmers had primary school education followed by secondary and pre-university education. Most of the families were of medium sized (46.67 %) followed by large families (40 %).
- Most of the farmers in Ratnagiri district were of large farmers (46.67 %) followed by medium farmers (41.76 %) and small farmers (11.66 %). The average land holding of the sample farmers was 10.43 ha. Whereas in Sindhudurga district more than half of the sample farmers were of medium farmers (53.33 %) followed by small farmers (30%).
- More than half of the sample farmers in Ratnagiri district (63.33 %) had 10 to 20 years experience followed by 25 per cent of the farmers had more than 20 years and only 11.67 per cent of the farmers had less than 10 years of experience in Cashew nut cultivation. Whereas in Sindhudurga district also majority of the farmers (71.67%) had 10 to 20 years of experience followed by 15 per cent of the farmers were having more than 20 years of experience.

- The total cost of establishment of cashew plantation during first year in Ratnagiri district was ₹ 50, 995 per ha in Ratnagiri district and ₹ 56,675.75 in Sindhudurga district.
- Total maintenance cost in Ratnagiri district was ₹ 20,182.50, ₹ 22,603, ₹ 25,542 and ₹ 28,373 during second, third, fourth and fifth years after cashew plantation establishment. Whereas in Sindhudurga district it was ₹ 23,460.50, ₹ 24,350.75, ₹ 26,640 and ₹ 30,235.50 during second, third, fourth and fifth years after cashew plantation establishment.
- The annual total cost of cultivation of Cashewnut plantation after five years of establishment of orchard in Ratnagiri was ₹ 28,373 per ha and ₹ 64, 494 in Sindhudurga districts.
- In Ratnagiri district total yield obtained was 1890 kg of raw Cashewnut per ha. Average price per kg of nuts obtained was ₹ 147.50. Farmers realized higher gross return of ₹ 2,78,775 and net return of ₹ 2,25,380 with return of ₹ 5.22 for every rupee of investment.
- In Sindhudurga district total yield obtained was 1890 kg of raw Cashewnut per ha. Average price per kg of nuts obtained was ₹ 153.20. Farmers realized higher gross return of ₹ 3,44,700 and net return of ₹ 2,79,206 with return of ₹ 4.26 for every rupee of investment.
- In Ratnagiri district better price was the major factor influenced the farmers in selecting a particular market followed by credit facility and low transportation cost. In Sindhudurga district also better price was the major factor influenced the farmers in selecting a particular market followed by low transportation cost, low commission charge.
- In Ratnagiri district labour shortage during peak harvesting period, higher initial investment and lack of technical knowledge were the major production problems faced by the farmers. In Sindhudurga district also better price was the major factor influenced the farmers in selecting a particular market followed by low transportation cost.
- In Ratnagiri district poor market intelligence, lack of storage facilities, non availability of market facility near farm, price fluctuation, financial support for marketing were the

major marketing problems faced by the farmers. In Sindhudurga district also labour scarcity was the major problem followed by lack of quality seedlings.

- In both Ratnagiri and Sindhudurga districts found similar marketing constraints that is poor market intelligence was the major problem experienced by the farmers followed by lack of storage facilities, non-availability of market facility near farm.
- In Ratnagiri district nearly half of the farmers (46.67%) sold their produce directly to the processing units since they fetched higher price followed by wholesalers (20%) and village traders (18.33%), whereas in Sindhudurga district nearly one third of the farmers (31.33%) sold their produce at Banda market because higher prices followed by wholesalers (26.67%), processing units (25%) and village traders (16.67%).
- In Ratnagiri district most of the village traders were well experienced (50%). All the village traders were not having license. All the traders were procuring raw cashew from farmers directly at prevailing market price. Most of the traders were making payment to the farmers during the purchase time only (on spot payment). About 80 per cent of them expressed that they did not get access to information technology regarding price and market arrivals of cashew. Most of them sold raw cashew on bulk to the wholesalers.
- In Sindhudurga district half of the village traders were highly experienced (50%). All the village traders were not having license. Most of the traders (80%) were procuring raw cashew from farmers directly at prevailing market price. About 60 per cent of the traders were making payment to the farmers during the purchase time only (on spot payment). All of them expressed that they did not get access to information technology regarding price and market arrivals of cashew. Most of them sold raw cashew on bulk to the wholesalers (60%).
- In Ratnagiri district most of the wholesalers were highly experienced. Half of the wholesalers were performing purchase as well as commission agents. About 75 per cent of the wholesalers were having storage facilities. All the wholesale traders were having license. All the traders were procuring raw cashew at prevailing market price. Most of the traders were making payment to the farmers during the purchase time only (on spot payment). Most of them sold raw cashew on bulk to the processors.
- In Sindhudurga district more than half of the wholesalers were highly experienced. Most of the wholesalers (75%) were performing only purchase function. About 50 per

cent of the wholesalers were having storage facilities another 50 per cent did not have storage facilities. All the wholesale traders were having license. All the traders were procuring raw cashew at prevailing market price. About equal number of the traders were making payment to the farmers during the purchase time (on spot payment) and 50 per cent payment at purchasing time. About 50 per cent of them sold raw cashew on bulk to the processors and another 50 per cent of them at Banda market.

- In both the districts all processors were registered. In Ratnagiri district about 50 per cent of them are sole proprietors. On an average present establishment cost of processing unit was found to be ₹ one crore for plant of one t/day processing capacity. On an average production capacity of the sample processors was found to be 1.50 t/day and actual processing capacity was found to be 1.25 t/day. About 50 per cent of the processors opined that they procure raw cashew mostly from wholesalers and 50 per cent from Banda market. Most of the processors cleared payments during purchasing time only. About 50 per cent of them had storage facility and another 50 per cent did not have storage facilities. Most of them sold processed cashew to the wholesalers (75%).
- In Sindhudurga district about 75 per cent of the processors were running unit on partnership basis. On an average present establishment cost of processing unit was found to be ₹ one crore. On an average production capacity of the sample processors was found to be 2 t/day and actual processing capacity was found to be 1.5 t/day. Most of them (75%) opined that they procure raw cashew mostly from Banda market. About 50 per cent of them processors cleared payments during purchasing time and remaining processors mad payment at 50 per cent during purchase and another 50 per cent payment in future. About 75 per cent of them had storage facility and another 25 per cent did not have storage facilities. Most of them sold processed cashew to the wholesalers (75%).
- In Ratnagiri district in Channel-I price spread was found to be ₹ 640 which is highest among all the channels and producer's share consumer rupee was found to be 46.66 per cent. In Channel-II it was found to be ₹ 620 and producer's share consumer rupee was found to be 48.33 per cent. In Channel-III price spread was found to be ₹ 596 and producer's share consumer rupee was found to be 50.33 per cent. In Channel-IV price spread was found to be ₹ 600 and producer's share consumer rupee was found to be 50 per cent.

- In Sindhudurga district in Channel-I price spread was found to be ₹ 620 which is highest among all the channels and producer's share consumer rupee was found to be 48.33 per cent. In Channel-II price spread was found to be ₹ 600 and producer's share consumer rupee was found to be 50 per cent. In Channel-III price spread was found to be ₹ 580 and producer's share consumer rupee was found to be 51.66 per cent.

## Policy Recommendations

1. Lack of Regulated markets and its functions for Cashewnut marketing in the study area, there is need to be establish regulated markets.
2. There is need to establish the warehouse under public private partnership at each taluka/ block level particularly for raw cashew.
3. Since., price spread is more, producer's share in consumer rupee is less (50 per cent ) because of more intermediaries, it is recommended to provide financial assistance to the farmers to establish processing units
4. There is Necessary to promote the *Farmers Producers Companies* / FPOs for the best interest of small and marginal farmers. So that farmers may realise better share in consumers 'rupee.
5. Since establishment cost of cashew is high, government may insist institutional financing agencies to provide loans at reasonable rate of interest.
6. For the small processors working capital is a constraint, there is need to provide necessary financial assistance as of agricultural loan.
7. Need for strengthening of nurseries to raise qualitative and quantitative planting materials in the interest of farmers.
8. Age old plantations lead to decreasing in the yield level, proper action is to be initiated for new improved varietal plantations and necessary to strengthening of extension activities.
9. Need to utilise the cashew apple as by product, since it is underutilised against its potentiality. There is need of intervention with government policy and procedures in better utilisation.
10. Since labour scarcity is common in agriculture it may be encouraged to evolve labour saving technologies.
11. Since most of the farmers expressed heavy incidences of pest especially stem borer and T- mosquito bug, it may be recommended to evolve resistant cultivars.
12. Government may provide subsidy to the processing units for purchase of machineries as it involves huge initial cost.

