



# Potential Horticulture Crops For Regional Development In Ratnagiri District.

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## Abstract

Agriculture is the main source of livelihood in Ratnagiri district. Agriculture depends on the monsoon rains, so kharif is a major activity in the district. The soil and climatic conditions of the district are very suitable for cultivation of horticultural crops; hence horticulture is the also main source of income in the district. e.g. Mango, Cashew, Coconut, Kokum, Jackfruit. Main crops Cereals, Mango, Cashew, Coconut and Nachani (Nagli) account for 78% of the total crop area in the district. Cashew cultivation provides direct and indirect employment to more than 5 lakh people in rural areas of Ratnagiri district. Mango and cashew are the two major cash crops in the district. These potential horticulture crops can contribute to the regional development of the district. Based on the secondary information and consultation with the major stakeholders in the district, these economic activities can give additional impetus to the economic growth of the entire district. This research paper focuses on the Potential Horticulture Crops for Regional Development in Ratnagiri District. The present research work has based on both primary and secondary data. It also discusses the strengths, weaknesses, opportunities and threats of each potential sector.

**Keywords:** Horticulture crops, Regional development, SWOT analysis.

## 1. Introduction

The economy of Ratnagiri district is mainly dependent on agriculture. More than 50 per cent people are involved in agriculture. Agriculture is dependent on monsoon rain, so kharif is a major activity in the district. Horticulture is also the main source of income in the district. The soil and climatic conditions of the district are very suitable for cultivation of horticultural crops. E.g. Mango, Cashew, Coconut, Kokum, Ramphal, Jamun, jackfruit, Banana and Pineapple etc. The main crops are Paddy, Mango, Cashew, Coconut and Nachani which account for 78% of the total crop area in the district. The soil and climate of the district is favorable for the production of cashew, mango, coconut and coir, etc. The world famous Alfonso mango has been grown in Konkan for many generations. And it is the backbone of the district's horticultural economy. Later, improved cashew varieties developed by agricultural universities will also find a place in the economy.

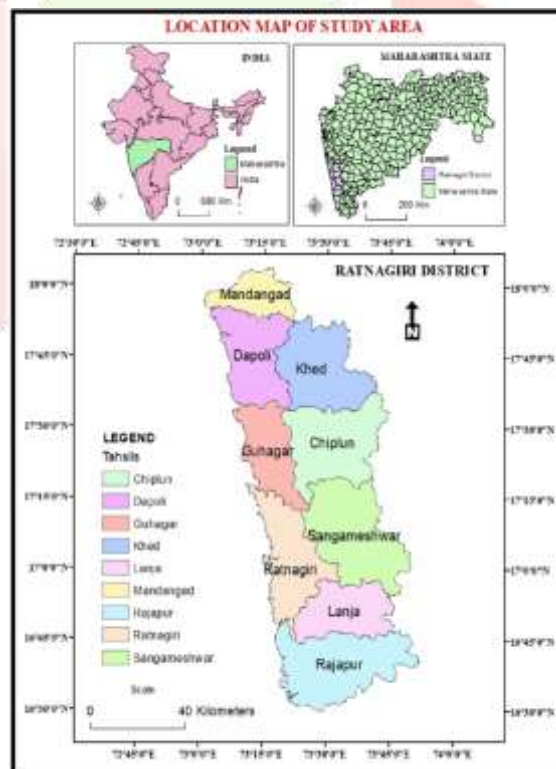
Recently cashew is produced and processed by the local community and sold in distant markets. The livelihood of the region is dependent on the mango and cashew based economy and is subsidized by the government.

## 2. Objectives

- 1) To take review of agriculture in Ratnagiri district.
- 2) To find out challenges for cashew nut and mango cultivation and producers.
- 3) Assessing the strengths, weaknesses, opportunities and threats of each potential sector.
- 4) To suggest recommendations for development of potential areas.

## 3. Study Area

For the present research paper, the Ratnagiri district is selected as a study region. The Ratnagiri district is well-known due to its geography, culture, history, etc. Ratnagiri district is located in the Konkan region of Maharashtra. Ratnagiri district lies between  $15^{\circ} 36'$  north to  $18^{\circ} 5'$  north latitude and between  $73^{\circ} 5'$  east to  $74^{\circ} 36'$  east longitude. It is located in Konkan region and Mumbai administrative area. The total area of Ratnagiri district is  $8208 \text{ km}^2$ . To the west of the district is Arabian Sea to the east is Satara, Sangali and Kolhapur to the south lies Sindhudurg and to the north lies Raigad district. In the eastern part of Sahyadri mountain ranges are present which about 180 km is and it possesses coastline of about 167 km. There are nine tehsils places in the district Ratnagiri, Chiplun, Khed, Sangmeshwar, Dapoli, Mandangad, Guhagar, Rajapur and Lanja.



## 4. Regional Development

Development is by definition a process by which a societal problem is to be solved by implementing a systematic and well-defined change process. Regional development activities are always designed at addressing regional problems and issues through development interventions which are best accepted out at the regional level. It focuses on good practice in the support and promotion of wealth as part of an integrated geographical approach, expressed at a regional scale involving regional factors.

## 5. Research Methodology

The present research work is based on both primary and secondary data. This work is mainly based on field observation. It consists mainly of farmers and informal discussions with them. Most of the research work was based on secondary information. That is, district census booklets, Fisheries department, Socio-economic reviews, statistical abstract, Comprehensive District Agriculture Plan 2012-13 to 2016-17 and other reliable publications, articles, news reports, prints, maps, journals, several websites etc.

**Crop wise details in Ratnagiri district (2012-13)**

**Table No. 1**

Crop	Total Area (Ha)	Productive Area (Ha)	Production (M. Tonnes)
Cashew nut	91030	79163	1187445
Mango	65109	58832	117664
Coconut	5165	470	529
Arecanut	961	764	764
Kokam	157	96	96
Saposta	123	92	92
Jack Fruit	113	78	468
<b>Total</b>	<b>162658</b>	<b>143733</b>	<b>1307058</b>

Source: Comprehensive District Agriculture Plan 2012-13

### Percentage share of Main crops with respect to area under crops in Ratnagiri District

**Table No. 2**

Main Crops	1991	2001	2011
Other Crops	2.01	2.1	10.43
Fodder & Green Manures	37.71	8.07	14.55
Other Fodder Crops	37.71	8.07	14.51
Ragi	9.22	8.29	0.04
Paddy	36.68	50.15	13.04
Cashew Nuts	4.44	5.91	28.90
Mangoes	11.57	23.02	24.51

Source: Calculated from Agriculture Census

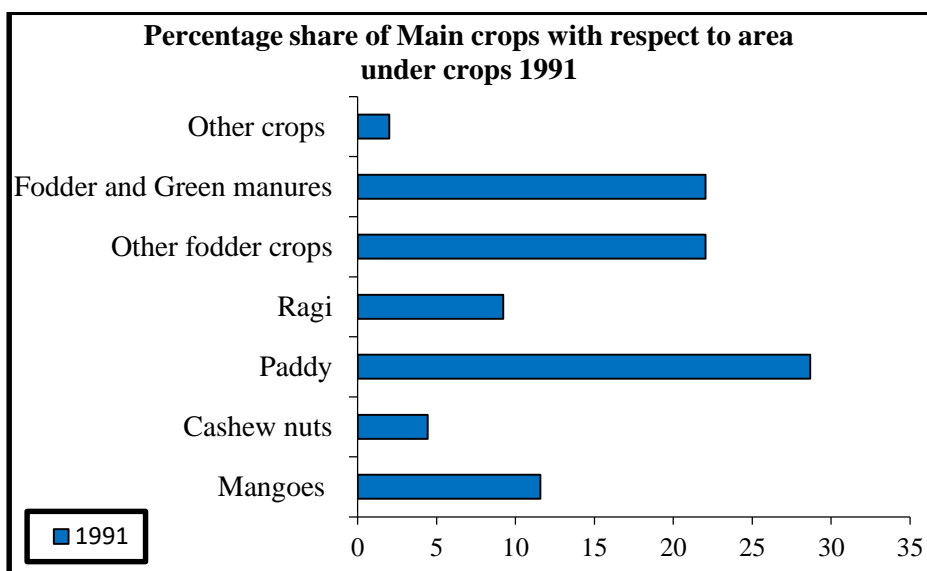


Figure: 1

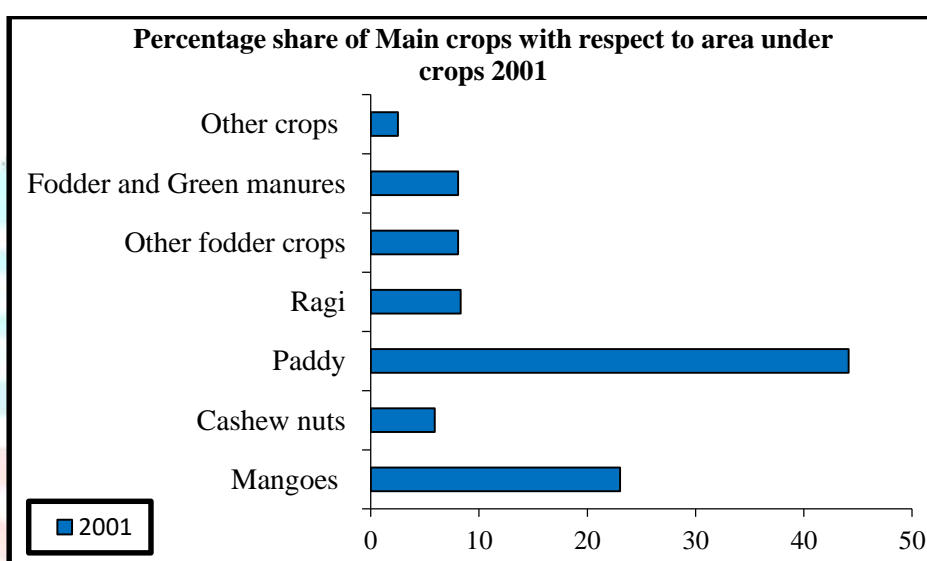


Figure: 2

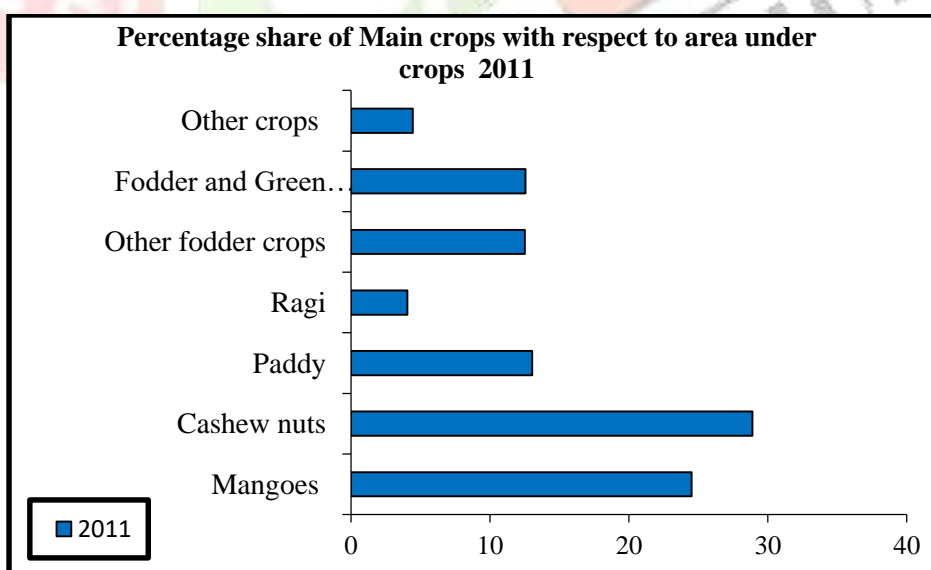


Figure: 3

Figure no. 3 show that Mango and cashew nut have the highest share of all other crops. The area under cultivation of both mango and cashew has increased in 2011 as compared to 1991. This is an increase of 12.94 per cent and 24.46 per cent respectively. Due to latest machinery and fertilizers used in the study region,

people have also shifted to horticulture for better financial strength. Some paddy fields have also been converted in to cashew nut and mango plantation.

## 6. Cashew Nuts

Cashew trees generally grow in hot humid regions. Therefore, cashew nuts are generally grown in the equatorial and coastal countries. In 2015-16, 10.34 lakh hectares of land was under cashew cultivation in India and about 6.70 lakh tonnes was produced. During 2015-16, Maharashtra had the highest production of cashew crop, followed by Andhra Pradesh and Odisha at 95,500 and 80,500 tonnes respectively. The total area under cashew cultivation in Maharashtra is 1.60 lakh hectares. More than 80 per cent (1.30 lakh tonnes) of the area under cultivation is in the South Konkan (Ratnagiri and Sindhudurg district) region of Maharashtra.

### 6.1 Challenges and Potential of Cashew Nuts

- 1) Most of the cashew producers in Ratnagiri district are small producers and they are unorganized.
- 2) Many small cashew processing companies have benefited from the government subsidy for cashew production. But, they did not have the necessary investment or knowledge.
- 3) Although the area under cashew has increased for some time, the market has changed due to low quality and poor processing.
- 4) The farmers in the district have to face common problems like non-availability of labor on time, high wages and pest and disease problems.
- 5) Cashew cultivation directly and indirectly provides employment to more than 5 lakh people especially in rural areas of Ratnagiri district.
- 6) Raw nuts, cashew kernel and cashew shell liquid are the three main cashew products while the cashew apple is generally processed and consumed locally in Ratnagiri district.

### 6.2 An analysis of the strengths, weaknesses, opportunities and threats to the development of cashew cultivation and processing in Ratnagiri district (SWOT Analysis) Strengths

- 1) Temperature, soil, rainfall and humidity are available for cashew cultivation in the district.
- 2) The area under cultivation in the district is naturally organic. So the quality of cashew is maintained.
- 3) Nearby is a fruit research center (Vengurla, Sindhudurg) which produces new and different varieties of cashews.

### Weakness

- 1) Most of the cashew producers are small and unorganized. Fragmented land and land lawsuits are barriers to cashew production.
- 2) There is a lack of research and development in cashew apple integration.
- 3) Timely unavailability of cheap labor
- 4) There are no direct export facilities for cashew production at district level.
- 5) Lack of infrastructure for storage and marketing
- 6) Lack of transportation in small villages

7) Middleman lobby

## **Opportunity**

- 1) If cold storages and other facilities are improved, there is an opportunity to increase processing centers in the district.
- 2) All types of cashew trees can be produced using different methods.
- 3) High export potential
- 4) Cashew apples can be widely used for liquor industry.
- 5) Co-operative farming / contract farming can be done.

## **Threats**

- 1) Import of cheap cashew nuts from other countries is a problem for local cashew production.
- 2) There is a shortage of cheap labour in cashew cultivation and cashew processing.
- 3) Due to changing climate, there is a possibility of pest infestation on cashew nuts and production may decrease.
- 4) Subsidy-driven cashew promotion may result in loss of forest and biodiversity since forest are on private lands.

## **7. Alphonso mango**

Mango cultivation in India dates back to 4,000 years ago. The mango crop in India was introduced to the world by the Chinese Buddhist monk Huen Sang. After that, mango spread all over the world through Portuguese seafarer. Mango is grown in about 111 countries around the world. India accounts for 45% of the world's total mango production. However, we are lagging behind in production and exports per hectare. The Portuguese brought this variety to Ratnagiri district. It is mainly grown in Western India including Sindhudurg, Ratnagiri and Raigad districts. Humid, subtropical and monsoon type climates are favorable for growing seedlings. Therefore, mango is widely grown in Konkan. About 1.65 lakh hectare area is under mango cultivation in Konkan region. The average yield is 2.50 tons per hectare. Alphonso Mango has been planted on a large scale by the people of Konkan taking advantage of 100% government subsidy which has been started for 25 years.

Alphonso Mango is a seasonal crop. It is produced between April to June. Alphonso mango usually Weight between 150 to 300 grams. Alphonso mango from Konkan is one of the most expensive varieties of mango. Alphonso Mango is also called 'Hapoos', 'Hapuj' or 'Apus'. This is one of the best varieties of mango in terms of sweetness, richness and taste. Ratnagiri Alphonso Mango is known as a unique fruit of nature. This is because the fragrance, taste, and colour of the fruit vary by region.

More than 65,000 acres of land is under mango cultivation, and the biggest production of Alphonso mangoes in India is in Ratnagiri. The main coastal area of Ratnagiri district is covered by mango orchards. The wind blows from the sea along with the micronutrients which helps the mango trees to bloom during the flowering season. Excessive humidity in the atmosphere adds to the mango juice. Mango is widely grown in Ratnagiri, Guhagar, Lanja and Rajapur tahsils. The export area of Ratnagiri Alfonso Mango is at Nachane.

## 7.1 Challenges and opportunities for mango cultivation and producers

Alphonso Mango is the identity of Konkan. The main component of the Konkan economy. Alphonso Mango is cultivated on 4 lakh acres in Konkan. Hapoos has a turnover of around Rs 3,000 crore. The livelihood of a few lakh farmers and their labours depends on this economy. Mango, the national fruit of the country, has an important place in our culture. Maharashtra is at the forefront of mango cultivation in our country. Hapoos and saffron mangoes from Maharashtra are tasted all over the world. Both Hapoos and Saffron varieties have got Geographical Index (GI) rating. Ratnagiri and Sindhudurg districts (Devgad Hapoos) have large number of Hapoos cultivators. Raigad, Palghar and Thane districts also have good mango production. Although Hapoos is a special identity of Konkan, Mango varieties like Raiwal, Rajapuri, Totapuri, Ratna, Sindhu, Payari, and Goa Mankur are also cultivated in Konkan.

1) Due to unseasonal rain, heat, more or less cold, climate change, increasing pest attacks, and excessive use of fungicides, mango farmers in Konkan in particular have been suffering from these problems for the last eight to ten years. so, production is declining sharply. In 2012, 3.4 lakh tonnes of mangoes reached the market, while in 2017 it was only 15,602 tonnes.

2) Rising temperature, humidity, pesticide attack and use of chemical fungicides have disrupted the flowering and fruit-setting cycles. So, it is affecting production.

3) Mango producers in Konkan are facing stiff competition in recent times, as mangoes in Karnataka are similar in appearance to Alphonso mangoes. But its taste is very different. In big markets like Mumbai and Pune, mangoes from Karnataka are called as Ratnagiri or Sindhudurg (Devgad) Alphonso mangoes. It is sold by such fraud. So the problem has increased.

4) It is necessary to set up a large number of mango processing units in the district. This can improve its benefits and capabilities.

5) Mango producers in Konkan are always in trouble with middleman and traders. The trader's business should be in the hands of the farmers. The following measures will be taken for this.

i) Mango producers to come together and form groups to capture domestic and foreign markets. All marketing problems can be solved through these groups.

ii) Proper management of production through group in times of risk.

iii) To set up cold storages in every taluka and market village for the perishable fruit of mango. Facilities like warehousing, pack houses, markets, vehicles etc. need to be made available to the farmers.

iv) To give a boost to the processing industry to get sustainable income from mango.

v) Establishment of market for mango in every district of Konkan.

vi) To connect every farmer with 'Mangonet' system and get its benefits.

vii) The children of the farmers should study the innovative system of selling agricultural commodities and make maximum use of that method to give prestige to the agribusiness.

viii) Branding of your mango by every mango grower.

The government needs a helping hand to provide relief to the mango producers in Konkan.

## **7.2 An analysis of the strengths, weaknesses, opportunities and threats to the development of Alphonso mango cultivation and processing in Ratnagiri district (SWOT Analysis)**

### **Strengths**

- 1) There are some mango processing units in the district. Many mango products are distributed all over India and also exported to the European and other countries.
- 2) Ratnagiri Alphonso Mango has different qualities due to morphological, physiochemical and genetic level.
- 3) Alphonso Mango has got the certificate of specific geographical origin and has got GI tag. So Alphonso Mango has a different quality and reputation.

### **Weakness**

- 1) Farmer and consumers do not know about GI.
- 2) Lack of organized system for production and marketing.
- 3) Manufacturers have to bear market based losses due to price manipulation by suppliers.
- 4) Lack of general storage facilities.
- 5) There is a lack of improvement in inputs like pesticides.
- 6) There is no separate market for Alphonso

### **Opportunity**

- 1) GI tag can increase tourism in the region.
- 2) Potential export is possible if safety and quality standards are followed.

### **Threats**

- 1) Subsidy-led growth in cultivation and insecurity due to climate change cause productivity fluctuations and deforestation.
- 2) Due to changing climate, there is a possibility of pest infestation on mango and production may decrease.
- 3) Large scale planting of mango trees can reduce forest cover.

## **8. Conclusion**

The area under cultivation of both mango and cashew has increased in 2011 as compared to 1991. This is an increase of 12.9 per cent and 24.4 per cent respectively.

An analysis of secondary information and field visits reveals that mango and cashew are the two major cash crops in the district. There is a need to create a good marketing system for these cash crops along with market committees and other marketing channels. Farmers should be trained to produce good quality raw materials.

## **9. Recommendations for promotion and improvement of Cashew nuts in Ratnagiri district**

- 1) Awareness programs are required for improved methods of production and processing of cashew nuts.
- 2) The 'contract farming' method can be tested for small and unorganized cashew producers in the district.
- 3) To promote cluster based cashew production and processing. This will benefit producers, laborers as well as processing and marketing.



- 4) In order to make cashew nuts available more in off season, common warehousing and cold storage facilities are required in each tahsil of Ratnagiri district.
- 5) Demand for 'Cashew Export Promotion Council of India' branch in Ratnagiri district.
- 6) It takes a lot of effort to process cashew apples.
- 7) Port development is required for easy export directly from the district.
- 8) To use modern techniques and new equipment for cashew cultivation.
- 9) To increase the area under cashew by making it a nursery so that cashew farmers will get employment and income.
- 10) Spreading awareness about process and value addition.
- 11) Private training as well as financing through SSC is required.
- 12) Spreading awareness among the cashew growers about the technique of cashew grafts.
- 13) To set up a separate nursery for organic cashew this can fetch good price in the international market.
- 14) To facilitate credit process for small investments to improve productivity.
- 15) Testing innovative irrigation technology.

## **10. Recommendations for promotion and improvement of Alphonso mango cultivation in Ratnagiri district**

- 1) Creating awareness among the farmers about GI Tag so that they understand the rights and opportunities available regarding GI Tag.
- 2) Forming clusters for mango cultivation for harmonizing production.
- 3) To implement awareness program for production and professionalized marketing among mango growers.
- 4) To try arrange leading and successful mango entrepreneurs to share success stories and techniques.
- 5) Special buses with built-in classrooms will be used to provide door-to-door training on UHDP techniques in mango cultivation to double the mango production and improve the living standards of the farmers. A similar project is underway in three Southern Indian states (Andhra Pradesh, Tamil Nadu and Karnataka).
- 6) There is a need for separate 'Mandi' for Alphonso Mango in the district.
- 7) Common storage facilities are required for mangoes at distribution places.
- 8) Existing pesticides are regimen to pests, so there is a demand to develop methods for improved pest management.
- 9) Marketing awareness is required in the district and outside the district.
- 10) Banks should create proper guidance to farmers for investment wisely and manage their finances properly.
- 11) It is necessary to invest in common facility center along with processing equipment to encourage processing.
- 12) Facilitating ease of access to credit for small investments and improve market access for small producers to improve production.
- 13) Testing innovative irrigation technology.

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