

<b>CHAPTER 1</b>	<b>INTRODUCTION</b>
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### 1.1 SIGNIFICANCE OF AGRO-INDUSTRIES

About 75 million among the presently unemployed or underemployed people of India may have to find jobs in activities other than direct cultivation of land and the growing of crops. This is because the land-man ratio in many parts of our country is already such that engaging more workers on land, except for special purposes and on special occasions, may not prove very productive. These workers will have to be given jobs in making improvements of a capital nature to our land and water resources, in animal-based industry and in non-agricultural pursuits. These, in turn, may have to be based on the processing of agricultural raw materials, by-products and waste materials.

### 1.1.1 Concept of agro-industries

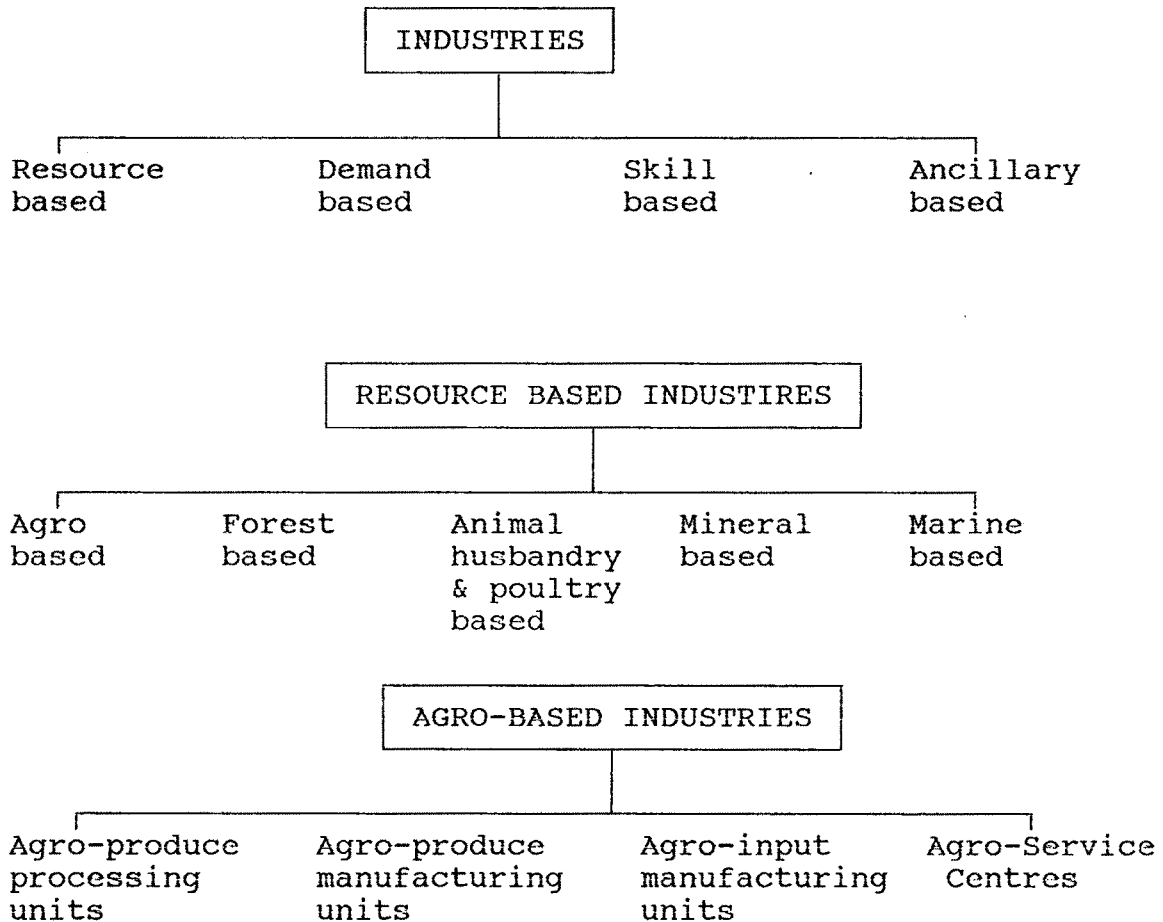
Conceptually "agro-industries" are the industries dependent, not only on the output of agriculture and allied activities but also on the inputs in agriculture like agricultural equipment, fertilisers and pesticides. The planning commission and later the National Development Council set forth criteria for distinguishing the agro-industries. Those industries are called agro-industries which satisfy the criteria as below:

- (i) Which encourage greater input into agriculture;
- (ii) which lead to better processing and conversion of agricultural commodities;
- (iii) which ensure high returns on processed goods;
- (iv) which increase agricultural production.

It means, therefore, that the agro-industries are instrumental to increased agricultural production and improvement in processing. It may thus be observed that the agro-industries cover the production of seed, feed, machinery, fertiliser, etc. In addition to above activities, the industries look to transforming raw materials into finished products and transporting to the needy markets.

### 1.1.2 Classification of industries :

Broadly, the industries can be divided into following groups:



#### Agro-based Industry :

Agro-based industries are those industries which have either direct or indirect link with agriculture. In other words, industries which are based on agriculture pro-

duce and industries which support agriculture come under agro-based industries. They are classified as shown above. Explanation of each category follows.

**(1) Agro-produce processing units**

Those industrial units which simply process the agricultural produce come under this category. They do not manufacture any new product, they merely process the agricultural produce as raw material. So that it can be preserved and transported at cheaper costs, e.g. rice mills, dal mills, groundnut decorticating mills, fruit processing units, etc.

**(2) Agro-produce manufacturing units**

These units manufacture the entirely new products based on agricultural produce as the main raw material. The finished goods will be entirely different when compared to its original raw material, e.g. sugar factories, bakery, textile mills, straw board units, etc.

**(3) Agro-inputs manufacturing units**

The industrial units which produce goods either for mechanisation of agriculture or for increasing productivity come under this type. These units are directly linked with agriculture, as they support agriculture at various

stages, e.g. industries manufacturing fertilisers, pesticides and insecticides and all types of industries manufacturing agricultural implements, pump-sets, etc.

#### (4) Agro-service centres

Agro-service centres are workshops and service centres which are engaged in repairing and servicing of pump-sets, diesel engines, tractors and all types of farm equipments.

These industries are expanding very fast in India but still there is sufficient scope for development of agro-industries. It is said that agro-industries are pivot of Indian economy.

#### 1.1.3 Role of agro-industries

Agro-industries serve as a vital means to bridge the gap between agriculture and industries. They also serve to promote integrated growth of agriculture and industries and thereby help to promote all-round employment of rural economy through exploitation of local resources, human and material. Agro-industries can therefore, be relied upon to stimulate industrialisation in rural areas. Promotion of agro-industries should constitute the key stone of rural develop-

ment. Benefits from the development of agro-based industries may be listed as follows :

(1) Agro-industries can push productivity in the agricultural sector through forward and backward linkage effects. Agro-industries can spark off innovativeness among the farmer community by encouraging them to resort to new techniques of production. They also help to promote productivity in two ways;

(i) By enlarging the supply of inputs like fertilisers pesticides and improved farm implements and equipment.

(ii) The development of agricultural output-based industries automatically encourages farmers to step up the output by using better farming methods with change in cropping pattern and wherever possible by adopting double cropping system.

(2) Industry and agriculture are closely inter-related. Improvement in the farm productivity is one of the important means of promoting industrialisation. Agriculture serves industry in various ways.

(i) It provides sustenance to the people engaged in industry.

- (ii) It supplies raw materials to industry.
  - (iii) It increases the purchasing power of the farm community to purchase industrial goods.
  - (iv) Accumulation of money by agriculture may become capital investment to industry.
- (3) Area development is conceivable only with the development of agro-industries. Agro-industries have a tonic effect on the development of rural economy through their linkage and spread effects. It also can pave the way for the growth of multi-sectoral economy. The sugar factories, cotton spinning mills, oil extraction plants, rice mills, fruit processing units, etc. can be cited as illustrations in this context. These units have brought up around their periphery townships with basic amenities of modern living. Complexes are developed around agro-industrial units which served as the nucleus of regional development.
- (4) The rural population is migrating on a large scale to urban areas in search of either seasonal or permanent jobs. Such a migration has created socio-economic problems for both urban as well as rural people. But migration of people can be well checked, if a number of large sized agro-based manufacturing units come up. The development of agro-industries may be used as one of

the effective tools in bringing prosperity in rural areas, particularly in backward areas. The agro-industries may give the desired 'push' to agriculture. These units will act as sources of demand as well as supply to agriculture in the sense that they may absorb the farm produce and supply inputs to agriculture. And thus the farmers get the work and there remain no need of migration.

- (5) Due to centralisation of industries in certain pockets of a country, problems of overcrowding of population, housing, transportation, water supply, drainage, slum, sewage, etc. are increasingly becoming acute and have adversely affected the social, cultural and individual life in such populous areas. A relief from monotony of the congested living in unhygienic conditions is offered by the agro-industries.
- (6) Agricultural commodities are often perishable. Agro-industries can help to prevent the loss arising as a result of perishability of agro-products and thereby plug the leakage in the income stream. The food-processing industries like preservation of fruits in cans and their conservation into jams are a case in point. The advantage of agro-industries lies in that the perishables can be processed and preserved so as to minimise wastage.



- (7) The agro-industries also create employment opportunities for the over-populated rural people in the countryside being marked largely by the disguised unemployment and unemployment due to uneconomic land holdings and seasonal character of agriculture. Thus it provides self employment to people. Agro-industries operated by competent and well-trained entrepreneurs help to fill the lacuna and thereby to level down inequalities of income and wealth.
- (8) Income generation through agro-industries may improve the purchasing power of rural people, thereby creating potential for demand-based industries. It thus helps in increasing the living standard of rural people.
- (9) Agro-based industries are suitable to the rural environment specially because they are raw material-oriented. If the farm produce could be absorbed by the nearby industries, the transportation cost may be minimised giving farmers a fair price. Moreover, most of the agricultural produce is bulky in weight and occupies more space. Consequently, transportation costs may be minimised at raw material source.
- (10) Agro-based industries can help the nation earn foreign exchange especially when the agro-based products are manufactured for export.

In sum, the agro-industries, if developed consciously with backward linkage to agricultural production, would help in making a strong headway towards the solution of the most troublesome problems of the country, viz., poverty, unemployment and inequalities.

## **1.2 FRAMEWORK OF THE STUDY**

### **1.2.1 Research in the past**

In the area of raisin production and marketing, much of the published literature and research work available in universities pertains to improved and scientific method of raisins-making. In other words, the researchers have given all attention to innovating better technique of production of raisins. Only sparsely one finds studies relating to economics of processing and marketing of raisin. As such, present study can be considered as the first step in the research on economics of raisin.

### **1.2.2 Objectives of the research study**

At the beginning of 1975 the grape-growers of Sangli district realised the economic importance of raisin production. They visualized the potentiality of this product for getting substantial returns, and cushioning them from ups and

downs in marketing of grapes. They took up to processing of grapes rather than selling in the market at uneconomic price. With passage of time since 1975, increasing number of growers entered into raisin activity as it was both an insurance against collapse of grape prices and an activity of sumptuous pecuniary gains from raisins. Consequently, raisin-making units grew in numbers and thereby the production of raisins. On this background, the present study is aimed at examining the progress of raisin industry in Sangli district in order to gauge the income-accruing potentiality of the enterprise. Estimation of cost of processing, cost of marketing, cost-price nexus and profitability of the endeavour will be looked into. All these details would reveal the possibilities of future growth of this fast-growing industrial activity. The dimensions of shift in the production of grapes for table purpose to raisin-making can be revealed.

Specifically, the objectives are as under:

- (1) To compute the cost of processing, cost of marketing and thereby the cost of production of green raisin and yellow raisin in Sangli district.
- (2) To examine the existing market structure for marketing of these products and to see its impact on the process of price determination.

- (3) To find out the cost-price relationship in order to judge whether the production of this product in the district has been and will continue to be a profitable endeavour. That will help in establishing its future prospects.

#### **1.1.3 Hypothesis**

Processing of grapes into raisin leads to a considerable value addition and hence the activity is a profitable proposition directly for the processor and indirectly for the producer of grapes. When producer himself is also the processor, the producer gains doubly.

#### **1.1.4 Methodology**

The investigation is based largely on the primary data called through sample survey and personal interviews. A limited use of secondary data is made. For survey method, purposive sampling method was followed. The objective behind this method was to get more authentic information about the subject matter. Details in this respect are given below.

#### **1.2.4.1 Area of study**

It is a study of Sangli district of Maharashtra. Selection of the region follows two stages. Initially Sangli district was chosen for the reason that it is leading in the state in the production of green and yellow raisin. This is the only place in Maharashtra where the production of raisin takes place. So Sangli district is the commanding district in the state so far as the production of raisin is concerned.

The second stage relates to the choice of thick pockets of the products in question. Most of the raisin-making units are near to the area of grape cultivation as it is the raw material. Of the eight talukas in Sangli district, Tasgaon, Miraj, kavathe Mahankal talukas are the leading talukas in grape cultivation. Again the climatic conditions required for processing of green raisin is available at Junoni which is at district border of Sangli and Solapur districts and Agalgaon village which is in Kavathe Mahankal taluka. So by considering all these factors the area selected for study was Junion and Agalgaon for green raisin and Miraj taluka for yellow raisin.

#### **1.2.4.2 Selection of producers**

As already pointed out purposive sampling method is selected for study. The reason behind the selection of

this method is to get more authentic information. Those producers are selected who can give more authentic information. In case of green raisin 10 units are selected while in case of yellow raisin 5 units are selected. The sample is certainly a small one, and may not in all probability be treated as fully representative. The researcher is aware of this limitation. Larger sample could not be taken for want of time constraint as also for the reason that this is a study of first research study. It can, therefore, be treated as a pilot study, providing a framework for research of the kind and at least throwing light on the probable economics of raisin-making enterprise.

#### **1.2.4.3 Survey period**

Actual field work was carried on during 1997. A structured schedule was used to collect necessary details from the respondents. Field survey was undertaken personally by the author in order to get the information as correctly as possible and visit the units personally in order to lend authenticity to the information collected.

#### **1.2.4.4 Personal discussion**

Besides the actual survey, personal discussions with government officials, agricultural economists, traders, office-bearers of cold storages and producers provided clues to the vital issues involved. It was helpful for revealing

some information which could not be covered by the structured schedule used for the producers.

#### **1.2.4.5 Secondary data**

A number of agencies and published works of officials and researchers formed the source of secondary data. Among the agencies worth mentioning are the Maharashtra Rajya Draksha Bagayatdar Sangh. District Agriculture Department, Horticulture Department of Sangli, District Industries Centre, Sangli and Regional Statistical Department, Kolhapur. Books, reports and journals were additional sources.

#### **1.2.4.6 Connotation of terms**

In this work, different terms have been used with specific connotation. Hence, they are explained below.

##### **1.2.4.6.1 Cost of establishment**

This is the cost incurred by the producer for the establishment of the shed. In it land cost of shed assets other than land, labour cost, transport cost of material are included.

#### 1.2.4.6.2 Cost of processing

Cost of raw material, transport cost of raw material, cost of assets, cost of chemicals, cost of labour, water and electricity charges are the items under this major cost item.

#### 1.2.4.6.3 Cost of marketing

Factor costs of grading, packaging, transporting of product, storage, commission and other expenses are included in this cost item.

#### 1.2.4.6.4 Managerial cost

It includes cost of managerial work, cost of office premises, cost of salaries of hired staff for the office.

#### 1.2.4.6.5 Small, medium and large firms

The sample producers have been categorised in three categories on the basis of total production of raisin per year which is as under

- (i) Small firm : upto 15 tonnes
- (ii) Medium firm : 16 to 30 tonnes
- (iii) Large firm : above 30 tonnes



#### 1.2.4.7 Schematic view of the study

The study of cost and price of green and yellow raisin is two-dimensional. The data in respect of average cost of production, price and net returns are presented in the form of average per kilogram with reference to one parameter, i.e., size of firm.

#### 1.2.5 Cost of production : Conceptual foundations

##### 1.2.5.1 Cost concepts

The cost of production of green raisin and yellow raisin has been worked out by using the following cost concepts.

Total cost is the aggregate money value of all inputs used in the production process, which covers all paid-out costs and imputed values of the factor units owned by the operator. The cost concepts officially used are as below:

Cost  $A_1$  = All actual expenses in cash and kind incurred in production.

Cost  $A_2$  = Cost  $A_1$  + rent paid for leased in land

Cost  $B_1$  = Cost  $A_1$  + interest on value of owned capital assets (excluding land)

Cost  $B_2$  = Cost  $B_1$  + rental value of owned land and rent paid for leased in land.

Cost  $C_1$  = Cost  $B_1$  + imputed value of family labour.

Cost  $C_2$  = Cost  $B_2$  + imputed value of family labour.

Average cost is associated with estimation of cost on average of all the firms in a region producing a specific commodity. Average cost has been widely used for estimation of cost. This cost concept has been employed for the present study too.

As regards cost coverage, all the items in the cost  $A_1$  to cost  $C_2$  are taken into account, the manner of valuation of the items being as elaborated in the following section. One important point of departure from the official method is that allowance has been made for the risk factor and management for arriving at the aggregate cost.

#### 1.2.5.2 Cost of production : Valuation of items

##### 1.2.5.2.1 Rental value of the land

In case of green raisin the land used for production activity is either owned or leased in land. Because as pointed out earlier, due to favourable climatic condition,

producers are more concentrated at Junoni and Agalgaon. In case of yellow raisin, mostly the owned land is used. Present market value of land is not the true index of the land value. Hence as more useful and convenient index, actual rent of leased in land or expected rental value of land is taken into account. Expected rental value was based on the judgement of the respondents.

#### 1.2.5.2.2 Cost of labour

Raisin production activity has remained largely a labour intensive activity excepting limited use of mechanical sprayer and grading machine. Hence the share of human labour is quite significant. Human labour can be classified into family and hired labour. The whole production activity requires considerable amount of labour. Most of the producers used hired labour. Wages of these workers are determined by availability of the work force in the locality. In the present investigation, wages paid to the hired labour have been valued at the going market rate.

Generally, in practice, male labour are used for establishment of shed, processing activity, etc. A point should be noted here that there is a practice to use female labour for grading purpose and they are paid as per the quantity of raisin graded per day. Therefore, female workers are more demanded for grading.

#### **1.2.5.2.3 Cost of raw material**

The actual expenss made on the raw material are taken into account. The price of grape is calculated at the going market rate. The producers which used to pruchase grape from grower, the actual expenses are calculated. But in case of the producers who use his own grapes, imputed value of grape is calculated.

#### **1.2.5.2.4 Cost of chemical**

The actual expenses made on the chemicals are taken into account. There are different types of chemicals used for the production of green and yellow raisin. For the green raisin, potassium carbonate and etyel oliet is used while for yellow raisin with potassium carbonate, etyel oliet and sulphur are used. The cost of chemicals is calculated on the basis of the price incurred by each respondent. The share of chemical cost is significant in the cost of processing.

#### **1.2.5.2.5 Shed asset other than land**

Shed implements and machineries are valued at their purchase price for estimation of depreciation. Annual depreciation is calculated. Depreciation of each shed asset is estimated by using 'straight line' method. The life of asset and its junk value at the end of its stipulated life is fixed on the basis of information gatherered from the re-

spondents and rate of depreciation is calculated in the following manner:

$$\text{Annual amount of depreciation} = \frac{\text{Cost of the asset} - \text{junk value of the asset}}{\text{Estimated life of the asset}}$$

$$\text{Annual rate of depreciation} = \frac{\text{Annual amount of depreciation}}{\text{Cost of asset}} \times 100$$

In case of raisin industry, asset is classified under two headings. First, the assets which are used for establishment of shed. Second, assets which are used for processing activity. There is variation in using the assets for the same purpose; e.g., some producers used bamboo for the establishment of the shed while some producers used iron angles. Again, plain net which is tied below the shed to collect the dried raisin is substituted by plastic paper. In case of yellow raisin, some producers use cement chamber for sulphur fumigation while some producers use the chamber made of plastic paper. Some producers use bamboo, tree leaves, limesticks for roof and shed net as substitutes to plastic paper as it helps to reduce their cost. While calculating junk value of bamboo and these items it is taken at a very low rate.

Following aspects are specifically noted in this context :

- (i) Actually the asset is often continued to be used beyond its real life through periodical repairs.
- (ii) Junk value is taken to be 10 per cent of the cost of the asset except bamboo, its value is taken to be 5 per cent.

Actually arrived, annual rate of depreciation for implements, tools and equipments possessed by respondents is as bellows:

(A) Assets used for establishment of shed	Annual rate of depreciation (%)
1. Iron angle	6
2. Iron sheet	6
3. Iron wire	6
4. Iron net	6
5. Net	15
6. Bamboo	19
7. Plastic sheet for roof	18
8. Rope	45
9. Nut-bolts	45
10. Plastic net	3
11. Shed net	18
12. Plastic paper	30

(B) Assets used for processing activity	Annual rate of depreciation (%)
1. Crate	18
2. Chamber	
(a) cement chamber	4.5
(b) plastic chamber	4.5
3. Tank	
(a) plastic tub	18
(b) cement tank	9
4. Stool	12
5. Plastic basket	18
6. Grading machine	9
7. Spray pump	9

#### 1.2.5.2.6 Water charges

Water is required in the processing stage. Water is used for cleaning the grapes and for making the solution of chemicals. Different sources are available from which producers get water. Majority of producers have tubewells of their own or in partnership. Some producers purchase water daily as per requirement. Very few producers, mostly producers of yellow raisin, rely on well for water. Principal tools for lifting the water is electric pump-set. The respondents could not give authentic information relating to the water charges. So, for the estimation of water charges, prevailing electricity rate is considered in case of the producers using pumpset. The producers who purchase water daily, the cost estimation is done according to the rate of their purchase.



#### 1.2.5.2.7 Electricity charges

Under this heading, electricity charges for lighting are considered. As pointed out earlier, this is a labour intensive activity, so the use of machines is very much less. Only grading machine is used which required electricity. Therefore, cost of electricity is insignificant. For the estimation of electricity charges, the tariff rate of electricity is considered. The cost is estimated by assuming Rs. 150 as average cost per month. Raisin-making activity continues for 3 to 3.5 months of the year.

#### 1.2.5.2.8 Cost of transport

Cost of transport incurred by the producer is for different purposes. Transport cost is incurred for the transport of assets, rawmaterial, packaging material and samples. In it, the cost for transport of samples is very insignificant. Estimation of transport cost is done on the basis of prevailing rate incurred by the respondents. Rates depend upon the distance to be covered by each unit. If the owned vehicle is used for transport, then the imputed value is calculated. In case of transport of packaging material, some producers enjoy the facility of home delivery.



#### **1.2.5.2.9 Storage cost**

This is one of the important costs incurred by the raisin producers. There is difficulty in calculating the storage cost because the respondents could not tell exactly how much quantity of raisin was stored and for how long. So, for realistic calculation of the cost of storage, it is assumed that on an average, one tonne of raisin is stored for one month before its marketing. The storage charges ranged between Rs.300 and Rs. 350 per tonne per month.

#### **1.2.5.2.10 Managerial cost**

Supervision and managerial work occupies crucial importance in the production process of raisin. The producer has to work frequently alongwith labour and also make arrangements of chemicals and raw material in time and manage the marketing activity. Majority of the producers did all this activity them selves. Very few of them got their supervisory and managerial work done by paid managers.

While discussing with the respondents, it was noticed that the supervisory and managerial work is for three to three and half months. So, for cost estimation this period was taken into account. Additionally, it was noted that every day the respondent spent seven to eight hours for managerial

work. Since supervisory and managerial work requires some special skill and attention than the simple labour, wages of the managerial work were calculated at the rate of Rs.75 per day, which was one-and-a-half times the wages of the manual workers in the shed.

#### 1.2.5.2.11 Cost of marketing

Raisins are marketed in three ways : (a) marketing through commission agents in Tasgao market yard, (b) marketing through cold storage, (c) marketing independently to local retailers. In former two systems, the producers have to pay commission to the middlemen at the rate of 1 to 2 per cent of the sale proceeds in case of Tasgaon market yard and 50 paise per kilogram in case of cold storage. In case of marketing through Tasgon market yard, the producer has to incur other expenses which include coolie and weighment charges. Therefore, while estimating the marketing cost, these marketing systems are borne in mind separately with reference to each respondent.

Due to inclusion of cost of management and risk, the scope of the cost of production adopted for present study crosses the limit of officially accepted concept of cost  $C_2$ . Cost of production is divided into cost of establishment, cost of processing, cost of management and cost of marketing.

The following chapters reveal the actual results.

### 1.3 SCHEME OF STUDY

The opening chapter is basically an introductory one providing the backdrop of the reasearch in question with larger part devoted to explanation of the methodology. Second chapter outlines the agriculture and agro-processing scenario in Sangli district. Third chapter provides an historical account of the development of grape activity in Sangli district. Economics of processing of grapes into green and yellow raisins is the subject matter of the fourth chapter. Marketing structure and cost of marketing of raisins have been discussed in the fifth chapter. The last chapter summarises the findings and conclusions.