



**CLUSTER DEVELOPMENT PROGRAMME, INDIA**

**DIAGNOSTIC STUDY**

**SME**

**GRAPE CLUSTER  
NASIK (MAHARASHTRA)**

**BY**

**SURESH BHOSALE**

**Chief manager (Project Co-ordinator)**

**STATE BANK OF INDIA, PUNE**

**DEVELOPED UNDER**

**THE CLUSTER DEVELOPMENT AGENT TRAINING PROGRAMME OF  
UNIDO CDP, NEW DELHI**

**&**

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## NASIK GRAPE CLUSTER

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## ***NASIK GRAPE CLUSTER***

### **1. INTRODUCTION**

#### **1.1 HISTORY OF THE GRAPE FRUIT IN INDIA**

Grape plant was introduced to the Indian farmer somewhere in 1300 AD. However, a few reputed varieties were actually planted in the country by the Muslim rulers from Afghanistan, only during the 14<sup>th</sup> century. The first plantation in Maharashtra State was introduced near Aurangabad. The popular and seeded varieties like Gulabi, Kali Sahehi, Anabeshahi etc were further introduced downward towards south. Dr. Chima a well-known scientist through the process of hybridization and selection introduced a new seeded variety called selection-7, which was used for table grapes only. The commercial production of grape was commenced only after import of varieties like Thomson seedless, Kishmish, Chorni, Beauty seedless etc. These seedless varieties over took the seeded varieties production tremendously. Currently grape cultivation in India has reached to the extent of 50000 ha, with an annual production of 10-12 lacs metric tons. Out of the total production, 87% of the produce is consumed as table grape while 10% is dried and produced for raisin, two percent for juice and one percent for wine.

#### **1.2 GRAPE GROWING REGIONS**

The Grape fruit grows in a variety of soil and climatic conditions in India viz. Subtropical, hot tropical and mild tropical regions. Maharashtra, Andhra Pradesh and Northern Karnataka lying between 15° N and 20° N latitude is the chief viticulture region accounting for 70% of the area under grape in the country.

#### **1.3 CURRENT PRODUCTION AND EXPORT EARNING CAPACITY**

India is now the second largest producer of fruits and vegetables (*Ref Annex-1*). The total production every year is valued at Rs.10,000 crores. However, most of this massive production goes for domestic consumption itself. For example, although 60% of the world's mangoes are produced in India only 2.5% of them are exported. Similarly, out of the 10-12 MT grapes produced every year, the export rate is only 1%. These exports cater mainly to UK, Middle East and Far East. By continuous improvement in the quality of grapes there is a large scope for export of Indian grapes in other international markets as well. Grape is still the second largest export earner in fruit crop in the country.

#### **1.4 THE NASIK (MAHARASHTRA) GRAPE CLUSTER**

Maharashtra is the major grape growing state in India and grape is considered as one of the important commercial fruit crops of the state. The cultivation area under grape in Maharashtra is estimated to be around 35,000 H.A. with the production of approx. 9 lacs M.T. The grape coverage is increasing constantly due to introduction of new cultivation practices and progressive nature of the farmer (*Ref Annex-2*). Second generation farmers are attracted toward the entrepreneurship in the production of grapes and processing it into value added products like raisin, juice, wine etc for exporting to European markets.



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The main varieties grown in Maharashtra are Thomson Seedless, Tas A Ganes and Sonoka. Other varieties gaining popularity are Manik Chaman, Kishmish, Chorni, Sharad seedless and Flame seedless. They share 80% of total acreage and production in the state. Some of the varieties are especially cultivated keeping in view their potential for export market.

Maharashtra covers 70% of the total area under grape in India mainly through its districts of Nasik, Solapur, Sangli, Pune and Ahmednagar. Out of this around 60% to 70% of the seedless grapes are produced in Nasik district alone. The Sangli, Solapur area is a dry belt where grapes are mostly converted to raisins. The climate of Nasik is relatively cooler and suitable for cultivation of quality grapes. Although Nasik district comprises of 13 talukas, only 7 talukas have the major share and amongst those the three talukas viz. Nasik, Niphad and Dindori are the leading growers. Therefore, this cluster shown in the map of district encompasses 90% of the grape cultivation. For last 20 years, grape has acquired dominance in the Agricultural economy of the district.

## **2. DESCRIPTION OF THE NASIK CLUSTER**

### **2.1 EVOLUTION OF THE CLUSTER**

The grape area in Nasik District is a naturally developed cluster due to the agro-climatic conditions and easy availability of related inputs. The water availability from five rivers, the dams and the flowing canals had earlier induced the farmers to go for sugarcane crop. The establishment of sugar factories and related infrastructure in this area made the cultivation of sugarcane easy with assured sale proceeds. But the progressive farmers of Nasik were not satisfied with the income from sugarcane crop, which was a heavy water consuming one. At the same time area under chilly and turmeric was also reduced and the high yielding varieties of grapes made an attractive proposition. The Nasik farmers developed the expertise in producing quality grapes. The grapes from Nasik thus offered premium price in domestic and international markets. Nasik is also well connected by national highways leading to Northern and Southern Indian markets. Thus the favourable agro climatic conditions, good infrastructure and nearness to the Mumbai market promoted the grape-growing cluster of this area.

Before industrialisation, the Nasik area was mainly depending on the Agricultural activities as a source of income. Grape cultivation was introduced here as early as in the 14<sup>th</sup> century but it was restricted to areas around Nasik town only. The expansion of grape coverage was slow due to limited market in India mostly confined to the elite group of people. After introduction of seedless varieties somewhere in 1960 the growth of grape farming industry took a long stride. The progressive farmers joined hands with some devoted scientists and horticulturists and popularised the varieties locally suitable and took the knowledge to the smallest of the farmers. The availability of water, well drained rich soils, pollution free atmosphere, the cool climate, availability of labour and the entrepreneurship bent of the farmers were the main factors responsible for the development of this cluster.



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After fulfilling the domestic market, the growers tapped the international market through the Grape Growers Association. The growers association and “Mahagrapes”, an organisation created by the farmers especially for export of grapes, developed the pre-cooling technology and introduced the Indian Seedless grapes in London Super Market. The England Super markets since then have been a favourite export destination as the former import large quantities of fruits and markets them through their huge networks of 300-500 retail outlets throughout Europe. The export of grapes from Maharashtra has been on an increasing trend since the year 1990 and today it has reached to 32000 MT earning a foreign exchange of Rs 90 crores.

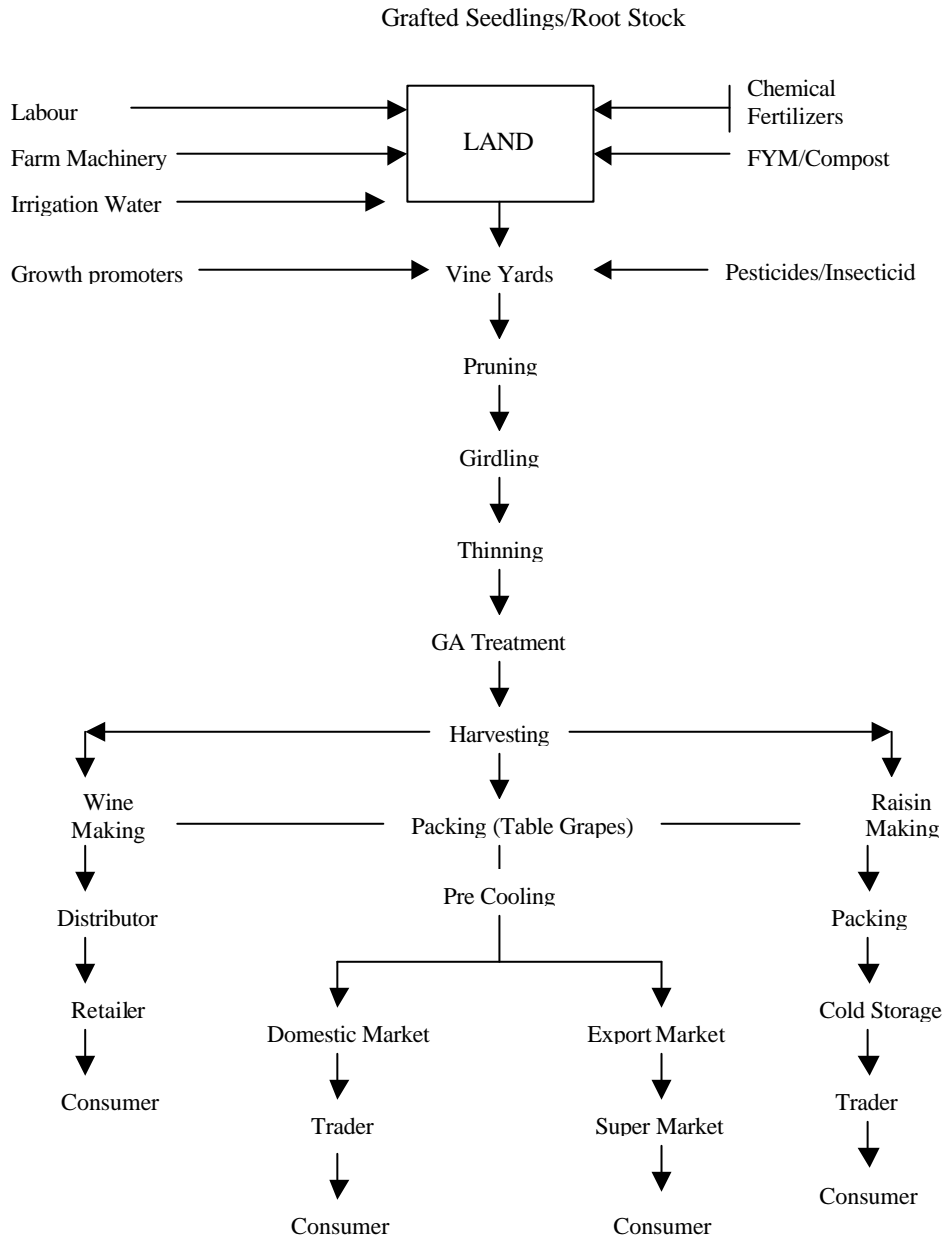
### **2.2 SOCIAL DYNAMICS OF THE CLUSTER**

The Grape farming in the Nasik Cluster is not dominated by any particular community or caste, and people of all economic strata and education level have picked up the expertise in this field. Initially, due to high cost of investment and risk, only big farmers would enter into this business while the small ones and the landless labourers would work only on daily wages. However, with subsequent generations more and more small farmers and labourers have purchased new fallow lands and have developed it with financial assistance from banks. The eagerness to acquire more and more knowledge about the Indian Grape markets and the zeal to experiment brought these people closer and has bonded them together.



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### 2.3 FLOW CHART OF GRAPE PRODUCTION & PROCESSING:





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### **2.4 GRADUAL DEVELOPMENTS IN MARKETING AND PRODUCTION TECHNIQUES**

#### **2.4.1 Development in Marketing**

Initially, the inland market was the only major outlet for selling the grapes that were mostly of seeded variety such as selection-7 Anabeshahi, Bhokri, etc. Farmers aimed only at increasing production quantities to get more and more profit. Quality parameters such as sweetness, size, colour, residues, etc were not given importance. The Indian market was sufficient for the total production of the country. After introduction of seedless varieties, the industry took faster pace and simultaneously the second generation of farmers entered into the scenario. Experiments were made and visits were arranged to tap the Middle East and European market by sending the consignment by air. However, due to higher freight charges the trials were not successful. It was only after pre-cooling technology was established by 'Mahagrapes' and the Grape Growers Association that it became possible to send the consignment by ships through containers to far away places.

Now with the export oriented cultivation practices in mind, the farmers tried to modify the technology required to get the products suited to foreign markets. Earlier the productivity was the only target before the entrepreneurs but now the exportable production i.e. the percentage of export to the total yield has taken a higher precedence. Financial banks are extending financial assistance by way of Agriculture term loan and crop loan, the quantum of which depends on the progressiveness of the client farmer i.e. his profitability and standing in the market. As a result the farmers who were inclined towards exports were in a better position to receive these loans.

#### **2.4.2 Improvements in Cultivation practices/Technology:**

The extraction of high yield from the existing grape gardens was resulting in reduction of its economical life and deterioration of the quality. Further "the flow irrigation" method then popularly adopted resulted into higher consumption of water. As there was a shortage of water during summer seasons so the farmers gradually resorted to "drip irrigation system", which was being offered at a subsidized rate by the state government.

The latest technology adopted by the farmers through knowledge from Research Centre, visits to other countries, Agricultural universities and their own experiments have helped them to monitor the quality of grapes such as size of bunches, sugar acid ratio, berry size, pesticide residue, shelf life, colour appearance etc. The introduction of planting on the root stock of Dogridge(B) variety has given tremendous advantages to the farmers to overcome difficulties such as water stress, salinity, quality etc. The technical and research support from the grape research centres and Agricultural Universities however is not keeping pace with the developments taking place world over.

### **2.5 GROWTH RATE AND PERFORMANCE:**

The growth of the grape cluster was steady and continuous with increase in cultivation area, the exportable grapes per acre and the total tonnage per year (*Ref Annex-3*). Due to easy access to the technology through literature, training programmes etc more and more enterprising farmers entered into



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this field. Some have picked up export business of their own cultivated grapes in addition to bought out produce, after establishing pre-cooling units. While others have preferred to convert grapes into raisins before selling them in the markets at a later date. Some have even resorted to cultivation of wine varieties imported from abroad particularly for wine-production. This wine sector has been given many concessions by the State and Central governments recently.

The farmers who visited European countries and attended international exhibitions have given them more exposure and awareness about the challenges before them. They are therefore pressing the central and state governments to take quick positive steps to maintain their position in the international grape market. The other countries like Chile, Israel etc. are threatening our position by introducing new varieties of grapes, which will be available during the late April and May. Indian and mainly Nasik farmer is however fortunate that unlike Chile they have huge domestic market to fall back upon.

There is a continuous improvement in the performance in spite of some set backs during the last few years due to natural calamities and low international rates. The financial institutions including nationalised banks and cooperative banks are always ready to finance a grape grower. The overall NPA percentage in case of grape grower is normally in the range of 1 to 2% only. The grape gardens have failed only when the venture is started by a farmer without testing the soils or verifying the availability of basic inputs. The grape cultivation also requires constant attention and entrepreneur has to be always vigilant and watchful.

### **2.6 MAIN FEATURES AND CHALLENGES**

This group of progressive farmers is facing challenges both at the local level as well as from the international markets. The grapes produced from Chile, South Africa, Israel have reduced the export window for Indian grapes in European market forcing them to search for an alternative outlet. Although our farmers are ready to spend considerable amount of money and labour yet many of them lack the knowledge regarding latest methods for increasing productivity, new time management techniques, marketing infrastructure and professional marketing skills. Also the climatic conditions in India are not exactly suitable for production of quality grapes as demanded by the European consumer and therefore the farmers have to spend huge sums of money on manipulating the harvesting period, controlling the diseases and the pesticide residues.

#### **2.6.1 Export Markets**

The major countries and seasons when they produce and export grapes are as under:

South Africa	- November to December
Chile (South America)	- January end to 1 <sup>st</sup> week of April
India	- 1 <sup>st</sup> week of February to mid May ( <i>Ref Annex-4</i> )
Israel	- Starting from 1 <sup>st</sup> week of May to June



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Although there is a considerable competition from other countries, the basic advantage for India has been that it is the only country that supplies grapes during the months of March and April. But this advantage might not last long as already other countries like Chile are trying to expand their grape production season so that they could compete with India.

Under the new GATT/WTO regime, the developed countries are also demanding strict adherence to ensure minimum level of insecticide/pesticide residues in grapes exported to them. If the exporters do not meet the quality and shelf life demanded by the super markets, the grape stocks pile-up at the market and have to be disposed off at very low prices. (*Ref Annex-4*)

The adoption of latest technology to maintain the quality of grapes is leading to high cost of cultivation. The increase in incidence of diseases like pink berry, mealy bug etc and the use of growth promoters has increased the input cost. The growth in production cost has affected the profitability of the farmers. The situation is worsened due to negligible rise in the international selling rate of grapes and the rejection of grapes due to pesticide residue.

The grape growers who are selling fresh table grapes therefore will have to either find new marketing avenues or go for value addition in grapes, to arrest the market glut during Feb to April, when the prices fall drastically. Farmers who are in need of money sometime make a distress sale or give the produce to commission agents who promise to give a higher rate but purchase the grape on credit. The Grape Grower Association and the Agriculture Produce Marketing Committee are assisting and guiding the farmers but their efforts are not sufficient.

The representatives of London Super Market who make agreements with the Nasik farmers after inspecting their gardens are also at times exploiting the situation and passing on lesser benefits to the producers. The importers pay an advance of 3 to 4 pound once the consignment reaches the destination and the remaining amount after the prevailing rates in the markets is decided. The rates are fluctuating and the farmer producer has to entirely rely on faith in the importer for the sale proceeds.

### **2.6.2 Supply conditions of major inputs**

#### **Basic Inputs:**

The farmers require chemical fertilizers, manure, pesticides, insecticides, Gibralic acid, Water, Packing boxes, Pouches, Sulphur guards etc as their basic inputs. The crop production has to be supported by timely supply of labour (semi skilled and unskilled), agricultural machinery, the facility for repair workshop etc. Although for the last couple of years the medicines such as Pesticides, Fungicides, Gibralic acid etc. are available at the dealer's shops yet their prices mentioned as MRP are quite high and not clear to the farmers. Many dealers are offering high discounts if purchased on cash basis.

Grape Farmers also require a huge quantity of compost and manure. But it is not available in the nearby area to the required quantity and hence has to be brought from a distance of 200 to 250 kms, which again means spending a good amount of time and money.



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### **Irrigation:**

Drip irrigation system is invariably installed by the farmers who opt for quality grapes. The performance of the system, which was introduced about 8 to 10 years back, is not satisfactory. The technology then used by the manufacturers is not reliable giving frequent problem of choking of drippers and non-uniform discharge of water. The uneven supply of water through the nozzles/drippers refrain farmers to use suitable fertilizers through water. Now progressive farmers are set to adopt new technology of fertilization through drip and hence need to replace the existing system with additional funds. The cost of soluble fertilizers however is still on the higher side. The electrical pump-sets run on electricity but the supply of the state electricity board is not reliable at the village level. The cultivators therefore store the water in the tank to make it available by drip which work on gravitational force, Diesel, petrol etc is normally available in the area and hence not a major problem.

### **Labour:**

During the critical period i.e. while pruning, GA treatment, thinning, harvesting etc, the availability of skilled/unskilled labour is very important. The cluster is now facing shortage of labour occasionally. But the groups of labourers who do these jobs on contract basis or as job work have relieved the farmer's load of maintaining labour through out the year. Now days the labour from neighbouring states like Gujarat do the job at reasonable wages. The farmers provide the basic facilities such as accommodation, water electricity, medicine etc, free of cost to attract them. These workers who shift from place to place however need to be trained for the specific job, which are required to be carried out for grapevine alone.

### **2.6.3 Financial Issues**

The grape related activity is capital intensive and requires financial assistance from Banks. The district is having a good network of commercial and co-operative banks (425 branches). The Nasik district co-operative bank is present through out the district. The Bank of Maharashtra, the leading Bank of the district and other major nationalised banks like SBI are catering to the Agriculturists for their long term and short-term financial needs. The grape farmers earning substantial profits normally invest in purchasing new lands and other immovable properties. Hence, whatever may be the status of these farmers they usually require credit throughout the year.

The financial needs of the farmers and the BDS suppliers are seasonal and quite flexible. The Banks have tried to bring uniformity in unit cost for the sake of easier processing and appraisal at the smallest branch level. But this has dissatisfied the more enterprising customer who is always in need of more finance. Commercial banks are trying to have more realistic appraisal to cater to all section of farmers and exporters.

### **2.6.4 Farm Machinery**

The farmers use 18 HP small tractors for transportation, intercultural operation, spraying of medicines etc. The tractor which is now available however is not an exclusively designed for grape farmers. There are many more operations, which can be carried out with little modifications in the tractor. The mechanisation to some extent can reduce the cost of operations and the dependence on the labour as well as the drudgery of manual work involved.



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### **2.6.5 Training and labour**

The farmers undergo training and obtain knowledge during seminars workshop arranged by the Grape Growers Association. But there is no training programme on practical work for the labourers who carry out different types of operations. The farmers have to spend a lot of time and energy on training new labour in the field.

There is also a dearth of trained salesman with the dealers who can properly guide the farmers to use any newly introduced pesticide, growth promoters etc. This makes the product either ineffective or results in over application.

### **2.6.6 Lag behind in Raisin Making**

The area is famous for quality grapes used for table purpose. Due to a longer harvesting period and slow rise in temperature the Nasik grapes have a longer shelf life, which is required for export and marketing at distance places in India. The farmers in this cluster do not go for raisin making unlike in other districts e.g. Sangli, Solapur etc. The Nasik climate with higher humidity and cooler atmosphere is not suitable for sun drying of grapes. Those who make raisins do not exclusively utilize the total yield for raisin purpose but convert the grapes with second grade quality for the purpose.

### **2.6.7 Testing Laboratories/Centres**

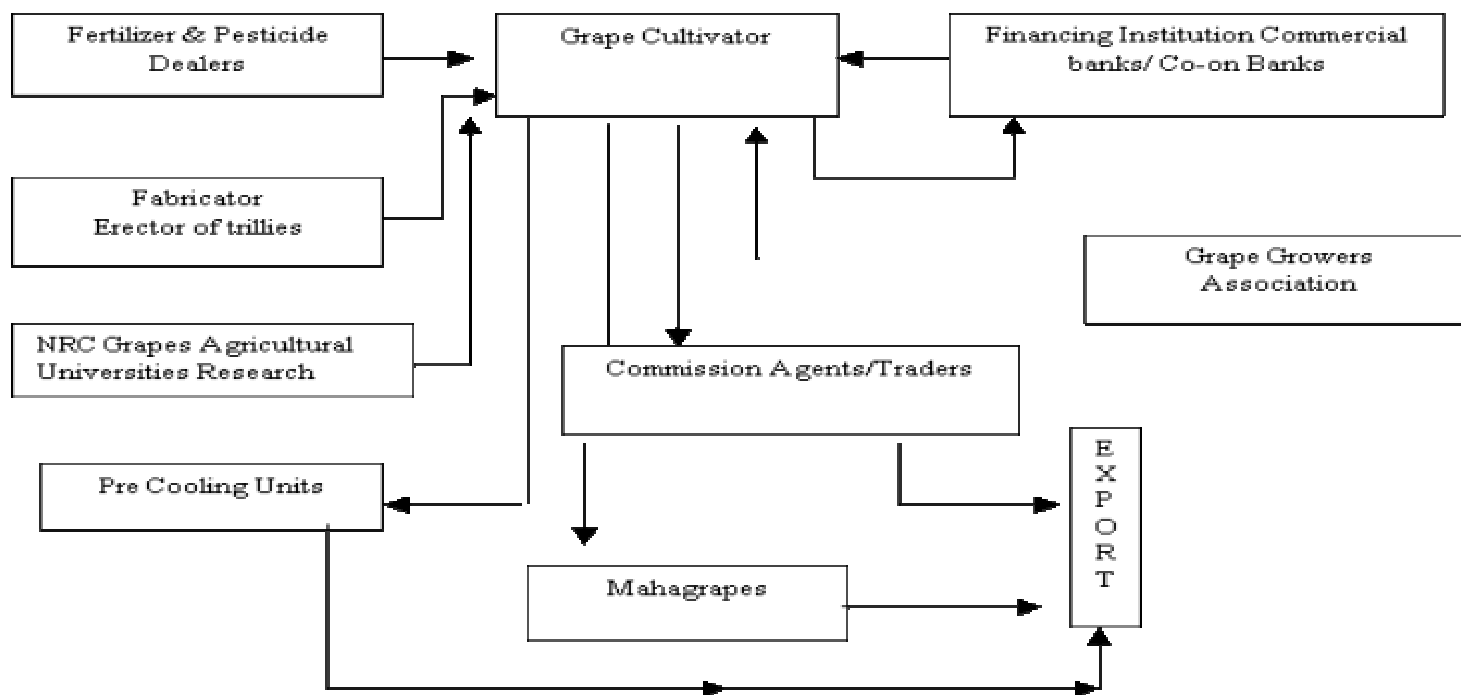
The farmers often need to do testing of soils, grape leaves, berries, the chemical residue etc. There are different labs established by the group of farmers, Agricultural department, private organisation, NHB Grape Association etc. Their strength is sufficient and the reliability is good and upto the user's satisfaction.



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### 3. CLUSTER FRAMEWORK AND LINKAGES

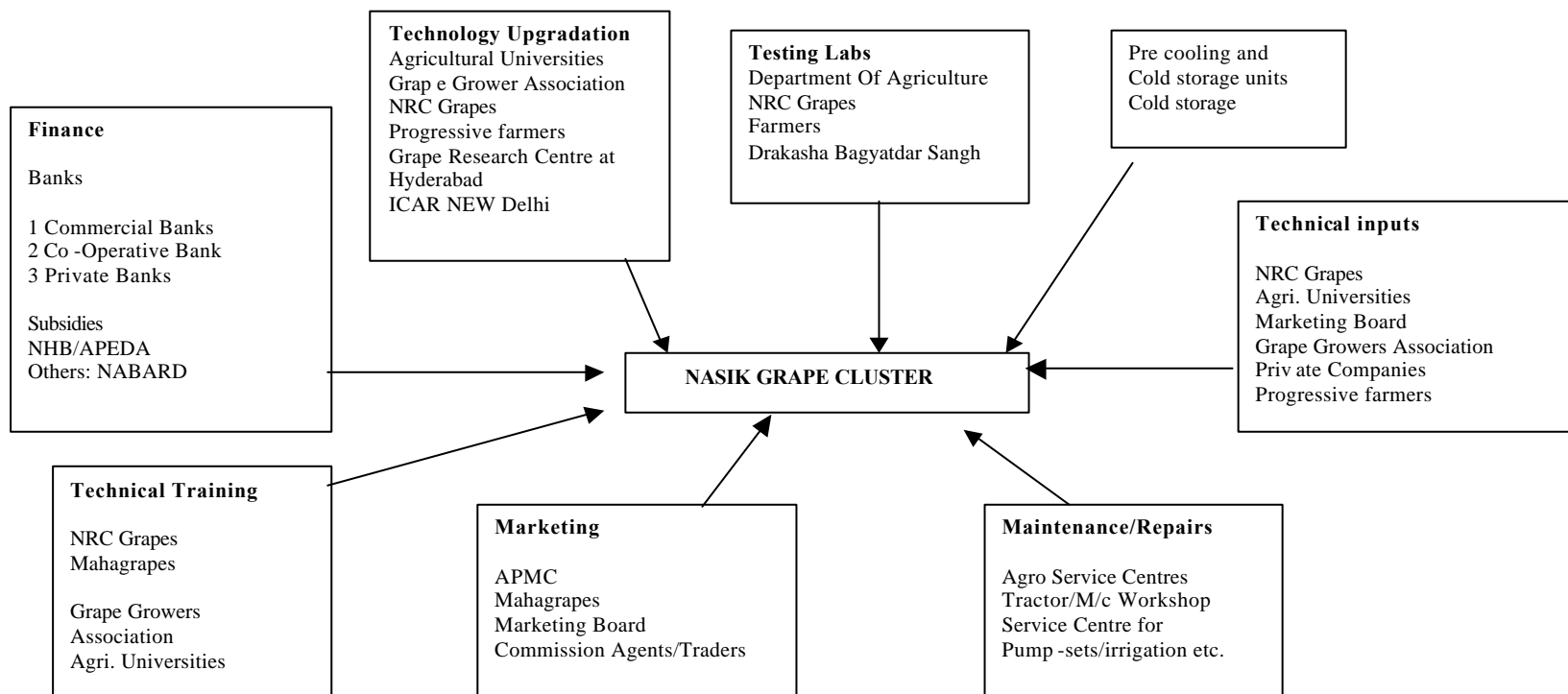
#### 3.1 ACTORS INVOLVED IN THE CLUSTER OPERATIONS





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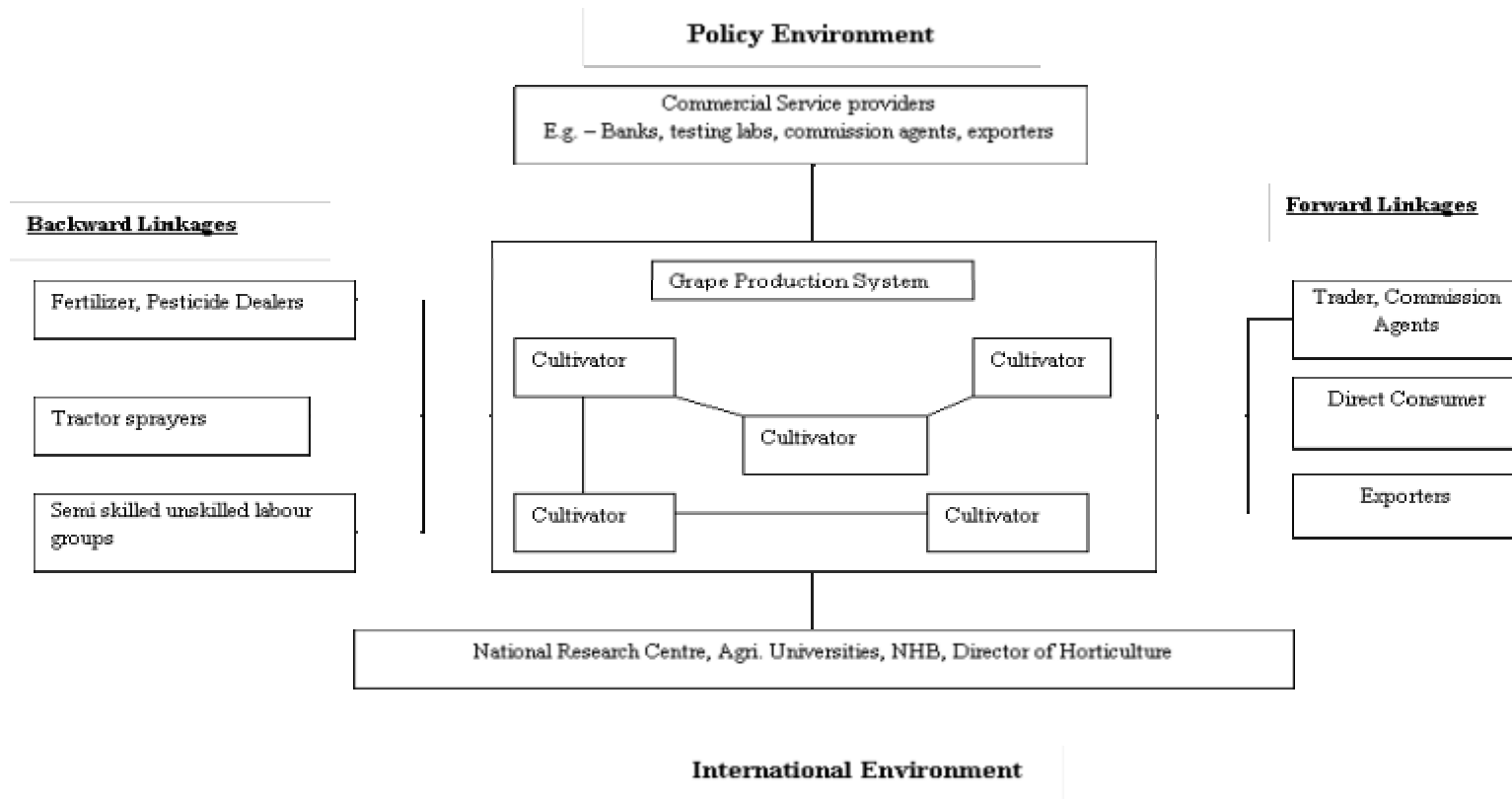
### 3.2 INSTITUTIONAL MATRIX PROVIDERS OF FINANCE & SPECIALISED SUPPORT





## NASIK GRAPE CLUSTER

### 3.3 CURRENT CLUSTER MAP





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### 4. PERFORMANCE AND ANALYSIS OF OPERATIONS

#### 4.1 VISION FOR THE CLUSTER

To enhance the profitability and competitiveness of the grape cluster catering to the domestic and international market by ensuring sustainable growth and improvement in quality, productivity, shelf life and value addition, through technology upgradation and effective networking.

#### 4.2 SWOT ANALYSIS OF THE CLUSTER

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> <li>• Grapes can be harvested to suit the market demand</li> <li>• Majority of area under tropical region where harvesting can be fitted into demand slot</li> <li>• Availability of manpower at low cost</li> <li>• Progressive farmers ready to adopt new technology</li> <li>• Export friendly government policies</li> </ul>	<ul style="list-style-type: none"> <li>• Narrow variety base</li> <li>• Faulty and unhygienic handling</li> <li>• Poor quality of grapes</li> <li>• High overheads for exports</li> <li>• Non availability of long duration storage facilities</li> <li>• Weak support from R&amp;D organisation due to various constraints</li> <li>• Exploitation by spurious traders</li> </ul>
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> <li>• Scope to harvest grapes in November</li> <li>• Marketing in Far East countries</li> <li>• Export of raisins</li> <li>• Value addition by processing and wine making</li> <li>• Eco friendly and biological control of pests and diseases</li> </ul>	<ul style="list-style-type: none"> <li>• Stiff competition from Chile</li> <li>• Aberrations in climatic conditions</li> <li>• Pink berry formations</li> </ul>

#### 4.3. PERFORMANCE ENHANCEMENT

The grape cluster comprises of the farmers, the grower- exporters, the trader-exporters, farmer-processors, cold storage owners, farmers-industrialists (wine-makers) etc. These entrepreneurs are supported by the business development inputs that affect the performance of this cluster. The success and failure largely depends on the level of trust and social capital available i.e. a means of exchanging ideas and information, mutual trust etc.



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This is because the different actors in this cluster have the opportunity to cooperate on issues like information sharing, joint procurement of inputs, training of manpower, setting of market centres etc. At the same time individual farmers may compete with each other at the market place.

Therefore to enhance the present performance of the group of farmer-businessman and to induce dynamism, we can take following steps to activate the software of the cluster.

### **A. SETTING COMMON VISION/GOAL:**

1. The individual farmers need to understand the potential in cooperation for the overall development of business. They should be made to realise the benefits in forming associations and coming on a common platform.
2. To set a common goal and thrive to achieve it with joint action and collective efficiency.
3. To bring about an attitudinal change and paradigm shift in the field so that all actors work to reach the common aim.
4. To uplift the aspiration levels by ensuring compatibility.
5. Strengthening the bonds between the groups and individual activities.

### **B. CAPACITY BUILDING OF THE FIRMS**

1. To generate awareness about different technical and managerial aspects.
2. To make them understand the future challenges, threats and opportunities in the changing global environment.
3. To create an understanding and trust building among support institutions.
4. To make use of existing technical knowledge with the help of research institute, universities through training field visits, seminars etc.
5. Building confidence among the farmers and igniting entrepreneurship qualities.

### **C. MORE EFFECTIVENESS OF INPUTS PROVIDED TO FIRMS**

1. To erase the misunderstandings among the BDS providers in order to bridge the trust among the network.
2. To uplift the capacity and willingness of the individual farmers to approach the various agencies providing services and to make them realise the long term benefit of paid-services too.
3. To bring about progressive transformation in the approach to ensure synergy in working for the set vision/goals.

### **EXPECTED IMPACT ON PERFORMANCE:**

The effect on the above actions would be visible on the following parameters:

1. Creating awareness of domestic and international markets especially in terms of understanding the consumer's product requirements.
2. Increase in quality production and ultimate sales



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3. Enhanced profitability.
4. Creation of additional employment in the cluster.

### **4.4 INTERVENTIONS PROPOSED:**

#### **4.4.1 THRUST AREAS IDENTIFIED**

##### **1. INTRODUCTION OF NEW VARIETIES:**

Different seedless and seeded varieties of grapes have to be introduced to cater to the different types of customers and their tastes. We have been largely depending on Thomson seedless and its mutations for many years.

##### **2. TO INCREASE THE EXPORT BY EXTENDING THE HARVESTING PERIOD:**

Instead of extending the harvesting period of existing varieties by the use of different cultivation practices, it is preferable to experiment with new varieties that would grow naturally to suit our requirements. This way the cost of cultivation can also be kept low.

##### **3. STANDARDISATION OF CULTIVATION PRACTICES:**

In European countries the standardised technology leads to a stable and high production. This helps in easy forecasting and promotes marketing e.g. standardisation can be made in the following:

- 1) Fertiliser application as per soil type
- 2) Planting of root stock variety as per soil, climate, water etc.
- 3) Types of trellis as per soil, sunlight, climate
- 4) Application of PGR as per soil, climate

##### **4. MEALY BUG PROBLEM:**

Research is needed to combat this disease through biological methods. The over dose of chemical pesticides retain the residue in berries and causes rejection in exports. At least 25% of grapes are rejected due to the mealy bug effect.

##### **5. PINK BERRY DISEASE:**

The farmers need to be made aware of the control on the disease. The biological enemies of mealy bug are dying due the application of pesticides on Pink Berry.

##### **6. DRIP IRRIGATION SYSTEM:**

The existing drip irrigation system does not give a uniform flow of water and often needs replacement with modern technology.



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### **7. RAISIN MAKING:**

The cultivation practices required for the grapes to be converted to raisin need be reviewed in order to bring down the cost. The left over and rejected grapes should not be processed to raisins. The Australian raisin making procedure can be improved upon to get the desired quality.

### **8. R&D AT UNIVERSITIES AND RESEARCH CENTRES:**

Our R&D is far behind the developed countries and needs to keep pace with the changing world scenario in order to be in a better position to face competition. The NRC for Grape at Manjari (Pune) can play a vital role here.

### **9. MARKETING:**

There are several intermediaries in the marketing chain resulting in delay and rise in market selling price upto 2.5 to 3 times of the farm gate price. This ratio is quite high when compared to any other country and seems to be the main reason for a low per capita consumption of fruits in our country. We should encourage the farmers to directly sell in the market by reserving some area in the APMC, as stalls especially for farmers.

An innovative system followed in Andhra Pradesh called Rutu Bazaar may be developed. The State Government agencies can guide the farmers by giving day-to-day market information on domestic and international markets. The Grape Growers Association and similar agencies should play major role in coordinating with the different strata of farmers and transferring the marketing data to the lowest level.

### **10. INDUSTRY RATES FOR ELECTRICITY:**

The export of grapes is earning a substantial foreign exchange for the nation. But an important factor i.e. the Pre cooling units are burdened due to high electricity charges as they have to pay by commercial rates of billing. A concession in these rates as well as for Agricultural pump sets would go a long way in encouraging this sector. The issue has to be taken up with the Ministry of Agriculture and Food Processing.

### **11. NATURAL CALAMITIES:**

An effective control is needed to bring down the losses due to natural calamities like non-seasonal rain, hail storms, heavy dew formation and sudden temperature variation etc. The use of U.V. sheets or shaded nets similar to a poly-house needs to be developed with low cost technology. Further for those bearing heavy losses, a calamity fund should be introduced at the association level.

### **12. TRUST BUILDING AMONG FARMERS AND AGRO INPUT TRADERS:**

Periodical meetings between the two most important actors i.e. the farmers and the traders should be held before the Agricultural season to understand the situation and build faith among them.



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### 13. INTERACTIONS BETWEEN SCIENTISTS, CONSULTANTS AND PROGRESSIVE FARMERS:

Although such interactions have been held quite often in the past yet these discussions need to be made more organised and practical such that it results in bringing out tangible results.

### 14. BRAND BUILDING EXERCISE:

The Nasik cluster with its own specialty and image of being a fore runner in grape cultivation should build a Brand of its own in the market for marking all its products i.e. Grape, raisins, wine etc.

#### 4.4.2 CHRONOLOGICAL CHART FOR INTERVENTIONS

2002	Trust building among cluster network. Generating awareness about WTO/GATT challenges. Understanding areas of intervention On-farm guidance to farmers
2003	Bridging gaps with support institutions Technical inputs through experts. Activities with short run returns. Variety introduction with demonstration. Credit for technological upgradation. Delegation of farmers to research centres.
2004	Technical know-how through seminars/workshops Infrastructure development Targeted marketing Credit backed by expert advise Strengthening of networks
2005	Quality improvement Increasing competitiveness Technical/Research Development Development of new marketing linkages Planned credit

#### 4.4.3 BENCHMARKS IDENTIFIED FOR THE DEVELOPMENT OF THE CLUSTER

1. Increase in yield of export-quality grapes upto 20 to 30% from the present level.
2. Increase in shelf life of grapes by adopting cultivation practices and post harvest technology (15 to 25%).
3. Introduction of eco friendly farming for sustainable production (500 acres grape area)
4. Growth in export market by 25%.
5. Integrated pest management in about 500 acres to bring down pest residue.



## NASIK GRAPE CLUSTER

### 4.4.4 FORMATION OF A CLUSTER CO-ORDINATION COMMITTEE

To monitor the progress of the Cluster Development Programme and advise on the action- plan, a cluster co-ordination committee is to be formed consisting of the following:

1. Representative of Grape Grower Association
2. President of Agro Dealer Association
3. Senior Officer of Credit Institution with technical/economic background
4. Representative of NHB/Director of Horticulture
5. Representative of APEDA
6. Two progressive farmers
7. Exporters from both categories i.e. farmer as well as traders
8. Cluster Development Agent as a convener

## 5. ANNEXURES

### ANNEXURE 1

#### AREA, PRODUCTION AND PRODUCTIVITY OF FRUITS IN INDIA

Year	Area (000 ma)	Production (000 MT's)	Productivity (MT/ha)
1987-88	2831	27674	9.8
1991-92	2874	28632	10.0
1992-93	3206	32955	10.3
1993-94	3184	37255	11.7
1994-95	4309	38603	9.0
1995-96	3357	41507	12.4
1997-98	3702	43263	11.7
1998-99	3727	44042	11.8

#### EXPORT OF GRAPES FROM INDIA

Year	Quantity Exported (MT's)	Value (Rs. In lacs)
1993-94	16000	3390
1994-95	17000	4048
1995-96	22000	5357
1996-97	21000	5248
1997-98	23000	6600



## NASIK GRAPE CLUSTER

### WORLD GRAPE TRADE

Country	Seedless Grape%	Seeded Grape(%)	Major Export Markets
Chile	85	15	50% USA, 30% Europe, 10% Gulf/Japan & 10% Latin America
South Africa	20	80	90% Europe and 10% other
Israel	65	35	95% Europe and 5% others
USA	80	20	90% USA and 10% (Europe/Japan)
Greece	95	5	95% Europe, 5% others
Italy	10	90	60% Europe and 40% others
India	95	5	95% Domestic & 5% (Europe/Gulf)

Source: APEDA

### ANNEXURE 2:

#### Grape Scenario in Maharashtra

##### AREA UNDER GRAPE

Year	Maharashtra area HA	Nasik Dist. Area HA
1990	14200	7300
1996-97	24681	13737
1999-2000	29756	17387
2001-2002	33836 (projection)	18833

##### PRODUCTION (MT)

1996-97	493796	325051
1999-2000	779177	436784

Export (MT)

1000 MT  
 17000 MT  
 22000 MT  
 32000 MT

Total raisin production in the state is 30,000 MT

Source: NABARD



## NASIK GRAPE CLUSTER

### DISTRICT-WISE GRAPE PRODUCTION IN MAHARASHTRA

District	Area in Hectare	Production in MT's
Nasik	17387	436784
Sangli	5585	168138
Solapur	1743	47470
Pune	1218	33566
Ahmednagar	1527	31977
Satara	316	11854
Kolhapur	94	2890
Others	1886	46498
Total	29756	779177

(Source: Directorate Horticulture, Govt. of Maharashtra)

### ANNEXURE 3:

#### TALUKA-WISE GRAPE AREA & PRODUCTION IN NASIK DISTRICT

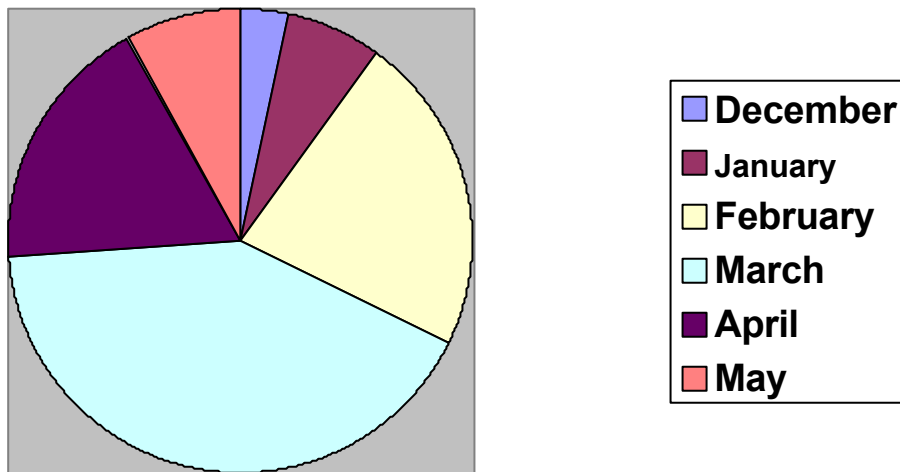
Sr. No.	Taluka	Area in hector	Average production in Ton	Production in Ton
01	Nasik	2145	21	45045
02	Sinnar	206	20	4120
03	Igatpuri	19	15	285
04	Peth	01	15	15
05	Niphad	10780	22	237160
06	Chandwad	1362	18	24120
07	Yeola	52	21	1092
08	Kalvan	157	20	3140
09	Dindori	4800	22	105600
10	Surgana	02	15	30
11	Malegaon	12	20	240
12	Nandgaon	09	15	135
13	Satana	435	20	8702
	Total	19980		429682



## NASIK GRAPE CLUSTER

### ANNEXURE 4:

#### SEASON - GRAPE PRODUCTION



#### QUALITY REQUIREMENTS FOR EXPORTABLE GRAPES

Criteria	Requirement
Bunch Shape	Oblong, Conical
Bunch Weight	400-600 gms.
Berry	Spherical, Greenish, Diameter above 18 mm, Weight 3 to 5 gms.
Firmness	Firm, Strong, pulpy, skin without crakes
TSS	18 to 12 brix
Acidity	0.50 to 0.65
Others	No spots, bruises, or residues of any chemicals. No off flavour/ odour/ taste