A Study On Grape Cultivation : Varities, Methods And Exports Prospects To Indian Economy

1. Praveen S. Kambar
Research Scholar,
Dept of Studies in Economics,
Rani Channamma University, Belagavi,
Karnataka.
Email: praveenskambar24@gmail.com

2. Dr. Kiran Kumar P.
Assistant Professor,
Dept. of Studies in Economics,
Rani Channamma University, Belagavi,
Karnataka.
Email: kirankarkunja@gmail.com

Abstract

Grape is considered as one of the finest fruits healthiest food. They are a rich source of vitamins and minerals that can contribute towards balanced diet. Among the fruits, grape is a delicious, refreshing and nourishing fruit. Grape is one of the most important subtropical fruit crops. About 94 per cent of the cultivated area in India falls under tropical region. Now days grapes have gained enormous commercial value because they not only serve as a table fruit but have high value in the international market for its multiple benefits. India's demand for fresh grapes had ranged between 90-93 percent of domestic production between 2014-2018. However, in recent years, reduced production and an expansion of exports have resulted in market corrections, with fresh grape demand now consuming 78-85 percent of domestic production.

The present paper analyzes the varieties, production techniques and importance of grape. The paper also makes aware of export prospects of grape cultivation from India to the world market. It also studies future outlook of grape exports.

Keywords: Site selection, Trellising, VSP, Pruning.

Introduction

Grape cultivation is an ancient practice that has evolved over centuries. The viticulture is believed to have originated in Armenia near the Caspian Sea in Russia, from where it spread westward to Europe and east to Iran and Afghanistan. Grapes were brought to India in 1300 AD by invaders from Iran and Afghanistan. Grapes are grown for various purposes, including wine production, table grapes, and raisins. Successful grape cultivation requires careful attention to a variety of factors, such as soil, climate, pruning, trellising, and disease management. In this extensive guide, we will explore the methods and techniques used in grape cultivation.

India is listed in the top 10 grape-producing countries in the World. The major producers of grapes are Italy, France, Spain, the USA, Turkey, China and Argentina. The export of grapes from India has witnessed substantial growth in recent years, due to factors like improved quality, varietal improvement, and expanding global market demand. Despite challenges, the future outlook for Indian grape exports is positive, with trends like organic farming, diversification of markets, and technology adoption contributing to the industry's growth. However, continued attention to quality control, pest and disease management, and addressing trade barriers will be crucial for sustained success in the international grape market. With the right strategies and continued support from the government, India's grape export industry is poised for further expansion in the coming years.

Objectives

1. To study the varieties of grape cultivation and methods of production.
2. To know the major grape producing states of India.
3. To understand the export prospects and challenges of grape production.
4. To suggest measures encouraging grape cultivation in agriculture.

Research Methodology

Diversification towards more productive and profitable crops like grape and other higher returns crops has become the new milestone to be achieved in Indian agriculture. A shift in area towards horticulture crops as a more viable and attractive alternative is a part of such diversification drive. The present research paper is based on descriptive analysis, done on secondary sources and various articles and research papers. The research paper tries to explore the varieties, method of grapes production and exports prospects in world market.

Production of Grapes in India

India has a diverse agro-climatic condition, which makes it suitable for grape cultivation. Grapes are grown in several states, with Maharashtra, Karnataka, and Andhra Pradesh being the leading grape-producing states. India predominantly grows table grapes, but a small portion is also used for making wine.

The production of grapes in India has been on a consistent upward trajectory. Factors contributing to this growth include favorable climatic conditions, increased acreage under grape cultivation, and the adoption of modern farming practices. The introduction of new grape varieties, such as Thompson Seedless, has further boosted production. Today, The sustainable grape cultivation is continually improving the production and sales reducing costs and effects of pests there by generating a good source of income to the farmers.

Grape Production State in India 2017-2018

Sr. No.	States	Production (Tonnes)	Share (%)
1.	Maharashtra	2,286.44	78.30
2.	Karnataka	524.20	17.95
3.	Tamil Nadu	58.93	2.02
4.	Mizoram	18.00	0.62
5.	Andhra Pradesh	15.92	0.55

Source: Tractor Junction, dated Sept. 01, 2021

1. Grape Varieties

Selecting the right grape variety is essential. Varieties can be categorized as wine grapes, table grapes, or raisin grapes. The choice of variety should consider the climate and intended use, as different varieties thrive under specific conditions.

A. Wine Grapes

Wine grapes are primarily cultivated for winemaking. They are categorized into two main types: red and white. Common red wine grape varieties include Cabernet Sauvignon, Merlot, and Pinot Noir, while Chardonnay, Sauvignon Blanc, and Riesling are popular white wine grapes. The choice of wine grape variety is often influenced by the local climate and wine style desired.

B. Table Grapes

Table grapes are grown for direct consumption. They should be sweet, flavorful, and have a pleasing texture. Varieties like Thompson Seedless, Crimson Seedless, and Concord are well-known for their table grape quality. These grapes are usually eaten fresh, but they can also be used in various culinary applications.

C. Raisin Grapes

Raisin grapes are specifically cultivated for drying. Thompson Seedless and Muscat grapes are widely used for raisin production. The grapes are left on the vine to dehydrate and naturally concentrate their sugars. After drying, they are used in baking, cooking, and as a snack.

2. Site Selection

The success of grape cultivation often begins with selecting the right site. Grapevines require well-draining soil to prevent waterlogged roots. Loamy soils with good aeration are ideal for grape cultivation. The vineyard site's exposure to sunlight and the microclimate can greatly impact grape quality and yield.

A. Soil Selection

Before planting, it is essential to have the soil tested for pH and nutrient content. Adjustments may be necessary to achieve the desired pH level. In most cases, grapevines prefer slightly acidic soils with a pH range of 6.0 to 6.5. Organic matter and compost can be incorporated to improve soil structure and fertility.

B. Microclimate and Exposure

The vineyard site's exposure to sunlight, known as aspect, can influence grape ripening. South-facing slopes receive more sunlight and warmth, which can be advantageous in cooler

climates. The proximity to bodies of water or mountains also affects the local climate, leading to variations in temperature, humidity, and frost risk. Vineyards should be strategically located to maximize sunlight and minimize frost exposure.

3. Soil Preparation

After site selection, soil preparation is a critical step in grape cultivation. Proper soil preparation ensures a suitable environment for root development and nutrient absorption.

A. Soil Testing

Before planting, it's essential to have the soil tested for pH and nutrient content. Adjustments may be necessary to achieve the desired pH level. In most cases, grapevines prefer slightly acidic soils with a pH range of 6.0 to 6.5. Organic matter and compost can be incorporated to improve soil structure and fertility.

B. Soil Conditioning

Soil conditioning is often necessary to improve soil structure and fertility. This can involve adding organic matter, such as compost or well-rotted manure, to increase the soil's ability to retain moisture and nutrients. It also enhances beneficial microorganisms in the soil.

C. Soil Drainage

Proper drainage is essential to prevent waterlogged roots, which can lead to root rot and other issues. Installing drainage systems or planting on raised beds can help manage excess water effectively.

4. Planting

The correct planting techniques are crucial for establishing healthy grapevines. Grapevines are typically propagated through cuttings or grafted onto rootstocks.

A. Vine Selection: When choosing grapevines, it's important to consider the rootstock. Rootstocks are selected based on factors such as soil type, disease resistance, and compatibility with the desired grape variety.

B. Vine Spacing and Orientation: Proper vine spacing and row orientation are crucial for vineyard efficiency and management. The distance between vines and rows should be determined based on the grape variety and trellising system. South-facing rows capture more sunlight and warmth, which is advantageous in cooler climates.

C. Planting Depth: Planting depth is critical. The graft union (the point where the grape variety is grafted onto the rootstock) should be positioned just above the soil surface. Planting too deeply or too shallowly can harm the vine.

5. Trellising and Training

Grapevines require support for healthy growth and to maximize sunlight exposure. Trellising and training systems are integral to grapevine management.

A. Trellising Systems: Various trellising systems are used in grape cultivation. The choice of system depends on factors like the grape variety, climate, and the available infrastructure. Some common trellising systems include-

1. Vertical Shoot Positioning (VSP): In VSP, shoots are trained vertically, creating a canopy that optimizes sunlight exposure and air circulation. It's commonly used for high-quality wine grapes.
2. Scott Henry: This system combines a divided canopy with a VSP approach. It's often used in cooler climates to improve ripening conditions.
3. Smart-Dyson: The Smart-Dyson system is designed to increase fruit production and make harvesting more accessible. It uses a combination of canopy division and vertical shoot positioning.

6. Pruning

Pruning is an essential practice in grapevine management. It helps control vine growth, optimize fruit production, and improve air circulation, reducing the risk of disease.

A. Winter Pruning: Winter pruning, typically performed during the dormant season, involves cutting back excess growth and removing old canes or spurs. The objective is to maintain a balance between vegetative growth and fruit production.

B. Summer Pruning: Summer pruning, also known as shoot thinning, involves removing excess shoots and leaves during the growing season. This practice improves airflow within

the canopy and allows better exposure to sunlight, reducing disease pressure.

7. Irrigation

Irrigation is essential for grapevines, as they require consistent moisture, especially during the growing season. Proper irrigation management is crucial to prevent overwatering, which can lead to root rot, or under watering, which can stress the vines.

A. Drip Irrigation: Drip irrigation is a common method in grape cultivation. It delivers water directly to the base of the plants

Export of Grapes from India:

Export of grapes from India has been a significant aspect of the country's agricultural trade for several decades. Grapes are one of the most important horticultural crops in India, and they are cultivated across various regions of the country. The export of grapes from India has seen substantial growth over the years, with India becoming one of the leading grape exporting nations globally. Indian grapes are known for their quality, taste, and appearance, which has made them popular in international markets. Grapes are exported both in fresh and dried forms. The major export destinations for Indian grapes include the United Arab Emirates, the United Kingdom, the Netherlands, Russia, and Bangladesh.

Factors Driving Grape Exports from India: Several factors have contributed to the growth of grape exports from India-

1. **Quality and Varietal Improvement**: Indian grape growers have focused on producing high-quality grapes. Varietal improvement, especially with seedless grapes like Thompson Seedless, has been a game-changer.
2. **Global Market Demand**: The international market has a significant demand for grapes, especially during the off-season in many countries. India's ability to supply grapes when they are not in season elsewhere gives it a competitive edge.
3. **Trade Agreements**: Bilateral trade agreements and reduced tariffs have facilitated the export of Indian grapes to various countries.
4. **Logistics and Infrastructure**: Improved cold storage facilities, transportation networks, and supply chain management have enhanced the export capabilities of Indian grape producers.
5. **Support from Government**: The Indian government has initiated various schemes and incentives to promote grape cultivation and exports.

Challenges in Grape Exports:

While grape exports from India have seen significant growth, there are also challenges that need to be addressed:

1. **Quality Control**: Maintaining consistent quality is essential for export markets. Indian grape growers must adhere to stringent quality standards.
2. **Pest and Disease Management**: Grape cultivation is susceptible to pests and diseases. Effective management is crucial to ensure export-worthy produce.
3. **Competition**: Indian grape exporters face competition from other grape-producing countries like the United States, South Africa, and Australia.
4. **Trade Barriers**: Tariffs, non-tariff barriers, and phytosanitary regulations in different countries can hinder exports.
5. **Infrastructure**: While improvements have been made, infrastructure for cold storage and transportation still needs further development.

The Future Outlook for Grape Exports from India:

The future of grape exports from India looks promising. Here are some trends and developments to watch for:

1. **Organic and Sustainable Farming**: There is a growing global demand for organic and sustainably grown products. Indian grape growers are increasingly adopting these practices.
2. **Diversification of Markets**: Indian grape exporters are exploring new markets to reduce dependency on a few key markets.
3. **Value Addition**: Besides exporting fresh grapes, there's potential for value-added products like grape juice, raisins, and wine.

4. **Technology Adoption**: The use of technology in grape farming, such as precision agriculture and Iot, is likely to increase.
5. **Government Initiatives**: The Indian government is expected to continue supporting grape exports through various schemes and incentives.

Conclusion:

Grape cultivation is a complex yet rewarding endeavor. Success depends on careful choices regarding grape variety, site selection, and cultivation techniques. From soil preparation to trellising, pruning, and pest management, each step contributes to the quality of the grapes produced. Whether you're growing grapes for wine, fresh consumption, or raisins, attention to detail and a deep understanding of the vine's needs are key to a fruitful harvest.

References

1. Bhagat and Jadhav (2021) A Study on Growth, Instability and Forecasting of Grape Export from India Volume 65, Issue 9, 2021 Journal of Scientific Research of The Banaras Hindu University
2. Nirmal Ravi Kumar & Suresh Chandra Babu Value chain management under COVID-19: responses and lessons from grape production in India Journal of Social and Economic Development volume
3. Mallikarjun M Maradi (2021) An Explorative study on sustainable grape farming practices in Karnataka: A case study in Vijayapur district Sambodhi, ISSN: 2249-6661 Vol. 44 No. 01(VIII) : 2021 pp-113-117.
4. Devaraj M Growth and Instability Analysis of Grapes Production in Karnataka (2020) International J. of Ext. Educ. Vol. XVI: 94-98, 2021 ISSN : 2319-7188
5. Vilas Jadhav, Mallikarjuna Swamy, N, G.M. Gaddi and Jagannath N Olekar (2018) Economic Tools for Evaluating Grape Business Year: 2018 | Month: December | Volume 63 | Issue 4.
6. Ghosh, chakraborty and Dasgupta (2017) A survey on Indian Grapes at sangli, Maharashtra, India Intrnational Journal of Current Microbiology and applied sciences ISSn: 2319-7706 Vol. 06 Number-5 pp-1904-1911.
7. Shiralashetti and Hadapad (2016) Constraints of Grape Cultivators in Karnataka: A Study of Bijapur Distict, INDIAN JOURNAL OF APPLIED RESEARCH Volume : 6 | Issue : 1 | JANUARY 2016 | ISSN - 2249-555X.
8. Shinde (2016) An Economics of grape under Horticulture in India, IJSRI 3(2): pp-69-71
9. Development of grape cultivation in Bijapur District, Karnataka (an ex-post evaluation study). Evaluation Study Series, National Bank for Agriculture and Rural Development, India (13): 86, 1982
10. Indian Council of Agricultural Research, Grape Cultivation, (Indian Institute of Horticultural Research, Bangalore, 1977), Extension Bulletin No.15, p.2.

Aayushi International Interdisciplinary Research Journal
ISSN 2349-638X
www aiirjournal.com