Analysis the productivity of Grape cultivation in India

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Abstract: The cultivation of Vitis vinifera cultivars is limited to the tropical and subtropical regions of northern Karnataka (Bijapur, Belgaum, Kadappa, Bagalkot), Andhra Pradesh (Rangareddy district), Tamil Nadu, and Maharashtra. Commercial grape cultivation in India dates back about 60 years. As there is no cold-induced dormancy of vines, the vines continue to grow continuously. It is customary to prune the vines twice a year while harvesting just one crop. Prior to the creation of the National Research Centre for Grapes in Pune, research was undertaken at a number of centres across India but did not priorities the needs of the sector. Since the establishment of this Center, a significant effort has been made to identify the actual production limits in grapes through fieldwork, discussions with producers and other stakeholders, and need-based research.

Keywords: Grape, India, Production, growing

Introduction:

The world and India both produce a lot of grapes as a fruit. After citrus and banana, grape is the third most extensively farmed fruit. The majority of the nation's grapes are grown in Maharashtra. The combined contribution of Maharashtra and Karnataka to India's grape crop is roughly 86.95 percent. In India, grapes are a popular fresh fruit. Additionally, it is used to make jams, marmalades, raisins, wine, juice, juice concentrate, squash, and drinks. Other significant grape-growing states are Punjab, Tamil Nadu, Karnataka, and Andhra Pradesh. In Indian agriculture, cereal-based cropping patterns have traditionally been encouraged by the land-use pattern. However, the new benchmark to be attained in Indian agriculture is diversification to more fruitful and lucrative crops. As part of this diversification drive and strategy, there has been a shift in favour of horticultural crops as a more attractive and viable alternative. Today, a lot of decision-makers, trade analysts, and development professionals are aware of the potential that horticulture has to create jobs and bring in foreign exchange for the nation. Horticultural crops did not receive much attention from various development specialists and policy gurus in the past, which is why this industry was long neglected. This is in spite of their inherent advantages in production and export.

Indian grape cultivation:
The grape plant is a perennial bush with helices, tendrils, and trails. Grapes that resemble vines are climbing plants. The tendrils that sprout on the stems are degenerated inflorescences. The leaves are fashioned like hearts. They are big and placed next to one another. They clearly have nerves. Color, size, and form of the leaves are influenced by variety. There are seeded and seedless varieties. The seeded variety allows for up to 4 seeds per fruit. Tannins are present in 4-6% of seeds.

Soil requirement for grape cultivation in India:
Numerous types of soil are suitable for growing grapes. The optimum soil is a sandy to loamy soil that drains well and has a lot of organic materials. For soil, a pH of less than 8.7 is recommended. It should contain up to 10% calcium carbonate and up to 20% lime content. Alkaline soils with poor drainage are not appropriate.

Process of Planting Grapes:
• Tilling is used to prepare the soil. The pit spacing is arranged adequately because grapevines are often planted in pits. The depth of pits varies from 60 to 90 cm.
• The spacing of the pit is impacted by the kind and variety of the training system. The pit needs to be prepared and left open for 30 days before planting.
• February and March are the ideal planting months in north India. Tamil Nadu and Karnataka in the months of December and January are for peninsular India.
• Grape growing generally avoids the monsoon season.
The grape plant begins to grow 10 to 15 days after planting. Warm season grape growth starts earlier than cold season grape growth. Just one month after planting, the plants require staking and training.

Review of literature:

Sudharshan G.M (2013) in his study of Marketing & Post-Harvest Losses in Fruits: Its Implications on Availability & Economy - A Study on Pomegranate in Karnataka. Our nation is recognized as basket of berries and vegetables on the global platform. It is the second largest maker of complete berries and vegetables. However, it is one of the major creators of fruit, the per capita accessibility of berries is not more than at 109 Gms in a day as compared to the than the commended mark of not more than 120 Gms. One of the parameters endorsed to inferior availability is the superior magnitude of the losses occurred at post-harvest periods that transpires at several junctures of promotion.

Dr. M.K. Sheikh et.al (2014) has authored Recent Advances in Grapes. He has brought out through his study of horticulture, prior to the inception of the cultivation of agro and horticulture produce, it is very mandate to have promotion awareness as well as cultivation. The accessibility of plot and the water resources with adequate facilities for irrigation and assortment of rootstocks also carries some weightage. Moreover, the sustainability of the crop needs to be taken in consideration. Prolonged duration should be cost-effective.

S. R. Takle (2015) in the book Agricultural Marketing and Supply Chain Management of Grapes speaks out about the agricultural segment plays a lively character in the nation budget. However, the portion of main sector in Gross National Produce more than 15 percent in 2015 and part in transfer is subsided to less than 9.9% (2015) still more than 59% employed populace is reliant on the cultivation and associated segments. In 12th Five Year Plan forecasting commission absorbed on to realize more than 9% growth rate of the entire budget. Unquestionably, the character of provision segment must be transfigured.

Need for the study:

As the Grape production involves heavy initial establishment and subsequent high maintenance expenses, its economic analysis is of great importance but the studies conducted on economics of grape production and investment pattern in wineries are very few. The present study is an effort in the area, production and yield performance studied in India.

Objectives for the study:

The important objectives of the study by analyzing the Grape cultivation in the India the specific objectives of the study are as follows:

• To Estimate the growth in area production and productivity of Grape in India

Materials and Methods:

The study's secondary data are of a secondary character and were acquired from numerous sources. The data have undergone both a quantitative and a qualitative analysis. Grape distributional trends have been described and analyzed for both India and the rest of the world in terms of area, production, and productivity. In India, patterns of grape production and area growth have been calculated. Analysis has established the results.

Methodology:

The gathered secondary data was then analysed, manually tabulated, diagrammed, and the outcomes were presented using Microsoft Word 2010 and Excel 2010. With the aid of Arc GIS software 10.2, maps of the research region, or the production, are created, and their distribution is depicted in a straightforward bar diagram on the map. Appropriate statistical approaches have been applied in order to analyse the secondary data that has been gathered. Statistical techniques like share of percentage and average annual growth rate are used to illustrate the growth rate of the grape crop in Karnataka in terms of area, production, and productivity. the average annual growth rate being AAGR.

Results and Explanations:

According to Table 1, throughout the course of the last ten years between 2011–12 and 2020–21—the output of grape in India has significantly increased, rising from 11.79 to 5.56 thousand metric tonnes. The average yearly growth rate is 1.72 percent, and the overall growth of output from 2011–12 to 2020–21 is 3.33 percent, virtually a drop in production.
Similar to this, from 2012–13 to 2017–18, the total area of grape and their production increased from 2483 to 3358 thousand hectares and from 118 to 155 metric tonnes per hectare, respectively. The area and production have both increased steadily, while productivity growth has been nearly constant. Production showed the largest positive growth in 2019–20 (3181%). Therefore, production is -4.22%, yield per hectare is 1.24%, and the compound growth rate of area is 2.94%. As a result, the area, production and yield per hectare is increasing satisfactory given the size of the area.

Table 1: Area, Production, Productivity and Growth of Grape in India (2011-12 to 2020-21)

<table>
<thead>
<tr>
<th>Year</th>
<th>Area (000 Hect.)</th>
<th>Growth (%)</th>
<th>Production (000 MT)</th>
<th>Growth (%)</th>
<th>Productivity (MT/Hect.)</th>
<th>Growth (%)</th>
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</thead>
<tbody>
<tr>
<td>2011-12</td>
<td>116</td>
<td></td>
<td>2221</td>
<td></td>
<td>19.14655</td>
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<tr>
<td>2013-14</td>
<td>117</td>
<td>-0.84746</td>
<td>2585</td>
<td>4.107934</td>
<td>22.09402</td>
<td>4.997745</td>
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<td>2015-16</td>
<td>122</td>
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<td>-7.50161</td>
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<tr>
<td>2016-17</td>
<td>136</td>
<td>11.47541</td>
<td>2921</td>
<td>12.77992</td>
<td>21.47794</td>
<td>1.170225</td>
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<td>2017-18</td>
<td>139</td>
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<td>2920</td>
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<td>-2.19177</td>
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<tr>
<td>2018-19</td>
<td>140</td>
<td>0.719424</td>
<td>3041</td>
<td>4.143836</td>
<td>21.72143</td>
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<td>2019-20</td>
<td>150</td>
<td>7.142857</td>
<td>3181</td>
<td>4.603749</td>
<td>21.20667</td>
<td>-2.36983</td>
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<tr>
<td>2020-21</td>
<td>155</td>
<td>3.333333</td>
<td>3358</td>
<td>5.564288</td>
<td>21.66452</td>
<td>2.158988</td>
</tr>
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</table>

AAGR 2.94 4.22 1.24

Conclusion:

India succeeds in maintaining its status as a major producer of table grapes. An analysis of this situation reveals that new research can advance the horticulture industry. One of the crucial stages to feed the globe by 2050 is preserving the genetic material for future development. One of the earliest fruit crops to be grown commercially is the grape, whose cultivation has become a science unto itself. In cold storage, the shelf life of many newly developed cultivars has been
increased to 6–9 months. In cultivated clones of Thompson Seedless and Sharad Seedless, flower drop or bunch rots during raining result in significant yield losses.

References

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