

Geographical Perspective of Mango Production in Karnataka

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Abstract: India has a very diverse range of soil types and climates. India's diverse geological and geographical circumstances are ideal for growing a wide variety of horticultural crops across the nation. One of these important fruit crops that is cultivated essentially everywhere in the nation is the mango. India accounted for the largest portion of the world's mango-producing countries in terms of the amount of land used for mango growing in 2020, or approximately 2294.01 percent (i.e., 1.2 million ha). In 2020, Karnataka produced tonnes of mangoes, with 40.48 percent of the exports going to India. A significant portion of the population is employed by the mango industry, which also generates a sizable amount of foreign investment. Mango horticulture may soon prove to be a vital source of income and may also lead to skilled employment for rural populations. In addition to highlighting the spatiotemporal patterns and trends of mango cultivation, this paper also explains the main regional geographic disparities.

Key words: Mango, growth, area, Karnataka

One of the most significant fruits grown worldwide in the tropics and subtropics is the mango. The mango tree is prized not only for its religious significance but also for its huge economic potential because all of its parts are seen as useful and serve a variety of functions (Singh 1960). It is primarily used as a source of food, fuel, and fodder in traditional Asian nations. Millions of people all over the world depend on the mango fruit for their livelihood. In addition to its many applications, it is a rich source of nutrients and a number of uncommon bioactive compounds. Millions of people who live in various subtropical, semiarid, and tropical regions of Africa and Asia rely on mango as a source of vitamin A. Mango is rapidly gaining popularity as a super fruit and has a role in high-tech commercial agriculture in the Western Hemisphere. The taste and flavour of the mature mango fruit are unique. Consumption and the area used for production are continuously rising as this fruit gains recognition as a superfruit. But the king of fruits is also up against a number of difficulties because of biotic pressures that are arising in a variety of agroecologies and a climate that is always changing. It is evolving into a crop that many nations export, creating competitiveness on the national and international export markets.

The genus *Mangifera*, which has 69 species with only some having edible fruits, belongs to the family Anacardiaceae. Among all species, *Mangifera indica* is the only one that is grown commercially. *Mangifera indica*, *Mangifera sylvatica*, and *Mangifera coloneura* are the only three species that can be found in India. *Mangifera* has 70 species, the majority of which are found only in tropical Asia, according to Viruel et al., 2005. Mangoes are typically deep-rooted, evergreen plants that sprout many branches and grow into enormous trees. It prefers rich, suitable agro-climatic conditions and thrives opulently in deep soils. Mango trees have an upright, rapid growth habit, with a broad or rounded canopy. While grafted mango trees, known as "kalami," only reach a height of 10 to 12 meters, trees that were grown directly from seedlings, known as "desi," can grow as tall as 20 metres or more. Mangoes can be produced economically between 25°N and 25°S of the equator in tropical and subtropical climates from sea level to a height of 1200m, but not above 600m. A monsoon-dominated rainfall of roughly 125 cm is seen as being ideal. During the growing season, mangoes prefer temperatures between 24 and 27 °C, accompanied with high humidity. Mango trees live a long time and can be successfully planted in a variety of soil types, including lateritic and alluvial soils. For mango, the best soils are loamy, alluvial, and sandy loam.

Literature Review:

Mary Antoni Rosalin (2014) - concentrated on measures to be attempted to defeat the issues experienced in the development of mangoes. Mango is an exceedingly short-lived, matures quickly amid summer and it ends up inconsumable soon. According to a gauge, 30-35% of mango is lost in reap and post-collect stage. On the off chance that the best possible consideration is taken from gathering to the last showcasing to the shoppers, a significant measure of misfortunes can be marked down and better-quality organic products can reach to the buyer which can assist the cultivators with getting gainful costs.

Purushottam Bung (2015) – Through his examination distinguished mango cultivator as the serious issues non-accessibility of right assortments of mangoes that are perfect for preparing; absence of important framework; absence of helpful exertion among cultivating network; and the absence of mix of the considerable number of exercises beginning from homestead entryway till conclusive buyers in light of sick working of the administration divisions/nodal bodies/foundations with no reasonable course and objectives.

Jadhav.S.S (2017) – Additionally considered the issues of mango development. he found that development and showcasing of mangoes, cost of foundation and task and support of the mango plantation, distinctive promoting channels utilized, dispersion framework, mango preparing, and the diverse issues looked by the mango business partners

Shyam Prakash Singh (2018) – Considered the explanation behind increment in the region under mango cultivator and distinguished the possibilities of mango cultivators moving the idea of development occasional to yearly and climate or the climatic condition and might be one of the more balanced purpose behind expansion of real estate under mango development like budgetary

help by government in wording endowment, accessibility of prime data sources saunter planting materials, appropriate watersystem office, these offices will enhance the mango tree's development.

Objectives:

- To study the status of the area, production and productivity of the mango crop in Karnataka.
- To highlight the present status of Mango cultivation in Karnataka.

Materials and Methods:

The study's secondary data were gathered from many sources and are of a secondary nature. Both a quantitative and a qualitative analysis of the data has been done. Mango distributional trends in terms of area, production, and productivity have been described and analysed for both India and the rest of the world. Mango production and area growth patterns in India have been calculated. The outcomes have been determined by analysis.

Data Base and Methodology

The current investigation is supported by secondary information. The National Horticulture Board, a department of the Indian government, provided the information on the area planted with grapevine crops. The data have been analysed using the appropriate statistical method. The time frame for this research is from 2001-02 through 2020-21. Cartographic techniques were used to analyse and present the acquired data.

$$\text{AAGR} = \frac{\text{End Value} - \text{Starting Value}}{\text{Starting Value}} \times 100$$

Where, AAGR= Average Annual Growth Rate

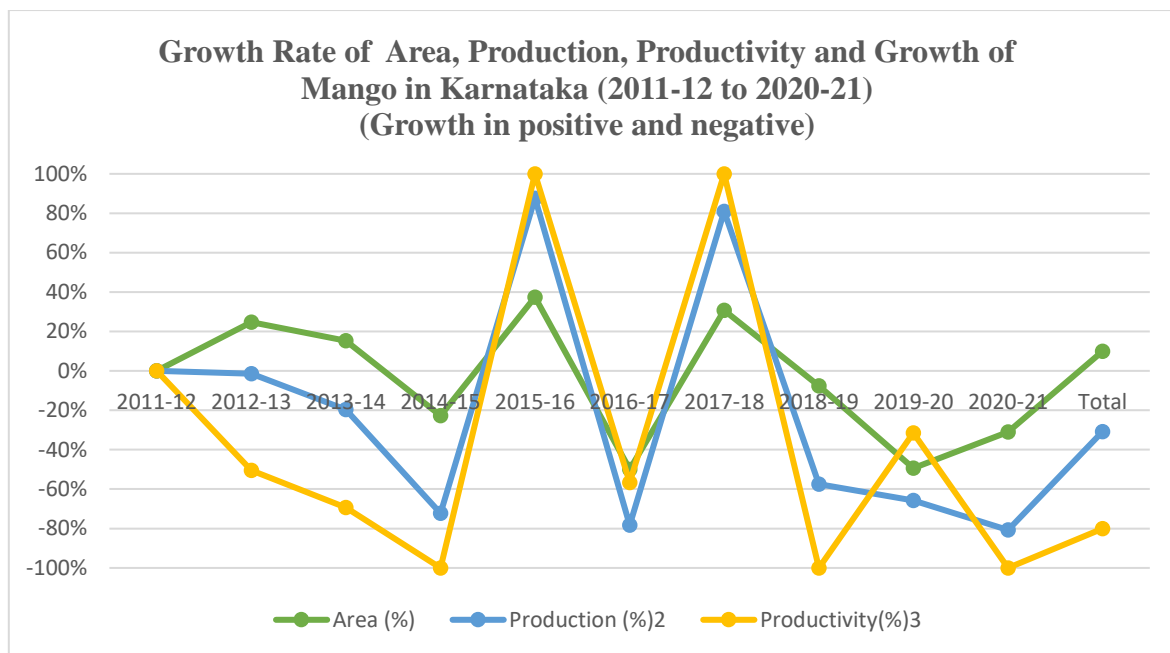
Table-1: Area, Production, Productivity and Growth of Mango in Karnataka (2011-12 to 2020-21)

Year	Area (000 Hect.)	Growth (%)	Production (000 MT)	Growth (%)	Productivity (MT/Hect.)	Growth (%)
2011-12	172.4		1868.3		10.83701	
2012-13	178.8	3.712297	1795.1	-3.918	10.03971	-7.35718
2013-14	180.53	0.967562	1755.56	-2.20266	9.724478	-3.13984
2014-15	175.41	-2.83609	1646.51	-6.21169	9.386637	-3.47413
2015-16	181.7	3.585884	1725.67	4.807745	9.497358	1.179563
2016-17	180.6	-0.60539	1719.73	-0.34421	9.522315	0.26277
2017-18	183.23	1.456257	1760.6	2.376536	9.608689	0.90707
2018-19	182.6	-0.34383	1720.7	-2.26627	9.42333	-1.92908
2019-20	176.28	-3.46112	1700.97	-1.14663	9.649251	2.39747
2020-21	172.79	-1.9798	1646.76	-3.18701	9.530413	-1.23158
Total	-	1.732	-	-7.105	-	-8.588
AAGR	0.022	-	-1.25	-	-1.27	-

Source: National Horticulture Board of India

Results and Explanations:

According to Table 1, throughout the course of the last ten years between 2011–12 and 2020–21—the output of mangoes in Karnataka has significantly increased, rising from 172.4 to 172.79 thousand metric tonnes. The average yearly growth rate is -1.25 percent, and the overall growth of output from 2011–12 to 2020–21 is -7.105 percent, virtually a drop in production. Similar to this, from 2012–13 to 2017–18, the total area of mangoes and their production increased from 178.8 to 183.23 thousand hectares and from 1795.1 to 1760.6 metric tonnes per hectare, respectively. Area and productivity have grown overall by 1.732 and -8.588%, respectively. In both cases, the average annual growth rate is -3.918 and 2.376536 percent. The area and production have both increased steadily, while productivity growth has been nearly constant. Production showed the largest positive growth in 2019–20 (2.39747%) and the biggest negative growth in 2020–21 (-1.23158%). Therefore, production is -1.25%, yield per hectare is -1.27%, and the compound growth rate of area is 0.022%. As a result, the area is growing, but the production and yield per hectare are not satisfactory given the size of the area.



Discussion:

In light of the condition of Indian Mango mentioned above, I'd like to briefly highlight some of my musings. It is evident that over the past 10 years, there has been an increase in area, output, and yield. The cultivation of Mango has undergone numerous changes. According to the aforementioned data, although the area being farmed has expanded significantly over the past few years, the production and yield per hectare have gone in the opposite direction. This may occur when farmers are unable to comprehend production technologies, when some farmers lack sufficient knowledge of the market environment, or when Mango prices are too high. This explains why the yield per hectare experienced a negative growth rate in parts of the last 10 years.

Findings:

- Based on the secondary data in area the growth rate of mango is increases but production and productivity are negative growth rate.
- In mango season, most of the employment opportunities are available in cultivation and marketing function in the Shimoga district.

Suggestion:

- The government should provide sufficient and timely compensation to the mango growers for loss due to the natural calamities.
- The government should educate the mango growers about the quality standards and packaging standards of the different importing countries.

Conclusions & Recommendations:

According to the aforementioned statistics, the area, production, and productivity of mango in Karnataka have increased at a considerably slower rate during the last ten years. The area under mango trees in the Shimoga district of Karnataka is expanding quite quickly. Although production in Karnataka has increased three to four times as quickly, the impact of the epidemic is anticipated to have a detrimental impact on growth in production in 2019–20. Mango production and productivity are currently doing better in south Indian states like Kerala and Karnataka. Karnataka has the most acreage that has been planted, according to the report. Inadequate farm management practices, such as the use of fewer pesticides, chemical fertilizers, and suckers, as well as a lack of knowledge and insufficient use of other inputs, all of which result in lower production and productivity, are the main causes of the significant differences in mango productivity between different districts.

Therefore, in order to boost productivity and mango production, growers must adapt and implement superior modern management practices that are currently being implemented in states with higher productivity, like Karnataka. Mango growers should receive financial assistance from the government so they may purchase fertiliser and insecticides as needed.

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