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Growth Trends in Export of Horticultural Products in India – An Analysis

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ABSTRACT
India, a prominent agrarian economy, strategically emphasizes export-led growth in the era of economic liberalization. The horticulture sector's growth trajectory differs markedly from broader agriculture. Initiated by the Green Revolution, late diversification in the 1980s included horticultural crops, emphasizing revenue generation over pure food security. Economic reforms in the 1990s accelerated this diversification, responding to rising domestic demand and export opportunities. In this context, the present paper analyzes the growth trends in horticulture exports in India, with a focus on identifying potential areas for further expansion. The horticulture sector contributes significantly to India's farm revenue, livelihood stability, and foreign exchange generation through exports. The paper uses secondary data from various sources and calculates CAGR and CV for the period 2001-02 to 2020-21 to analyze the growth trends in export volume and value across various horticultural categories. The preliminary findings indicate positive growth trends in the horticulture export sector, with notable potential for further sectoral growth. The paper concludes by highlighting the crucial role of the government in infrastructure development, research promotion, and incentivizing farmers to harness this potential for sustained growth in the horticulture export.

Key Word: *Export, Horticulture crop, fruits, vegetables, processed products*

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I. INTRODUCTION

India stands as one of the world's largest agrarian economies, strategically promoting export-led growth amid economic liberalization. The Indian National Agriculture Policy (NAP) places a significant emphasis on cultivating demand-driven agricultural growth in both domestic and export markets. Recent attention from the World Trade Organization (WTO) toward trade liberalization underscores a focus on international agricultural commodity markets, aiming to enhance market access while restricting export subsidies.

Horticulture marketing is defined by its customer-centric approach, involving the identification of buyers, understanding their product preferences, and delivering goods through an efficient production-marketing chain to ensure profitability and sustained operations.

Increasingly recognized as a sunrise industry, horticulture plays a pivotal role in augmenting farm revenue, ensuring livelihood stability, and generating foreign exchange through exports. India's unique agro climatic conditions, vast crop diversity, and genetic resources enable year-round production of a wide array of horticultural crops, ranging from tropical fruits like mangoes to subtropical fruits like apples. The horticulture sector encompasses fruits, vegetables, flowers, spices, plantation crops like coconut, beverages like tea and coffee, as well as various medicinal and aromatic plants.

The growth trajectory of the horticulture sector diverges significantly from that of the broader agriculture industry. The Green Revolution of the late 1960s and early 1970s initially aimed at addressing food security concerns, achieving self-sufficiency through technology bundles and policy interventions. However, in the late 1980s, diversification efforts began, encompassing oilseeds, commercial commodities like sugarcane, and horticultural crops, with a shift towards revenue generation rather than solely ensuring food security.

Economic reforms and policies in the 1990s further accelerated the diversification toward horticultural crops, responding to rising domestic demand for high-value food products and export opportunities. This diversification strategy involved adopting technological advancements, including protected cultivation, automation through precise technologies, and biotechnology applications for production and postharvest processes.

Recent measures aimed at improving infrastructure, such as cold storage facilities, quality control, and streamlining processes, have further supported the horticulture sector. Government initiatives, including contract farming and the promotion of farmer producer cooperatives, have emerged to strengthen vertical and horizontal links in the horticulture value chain. Recognizing the higher net returns of horticulture crops compared to other crops, the Indian government aims to double farmers' incomes by 2022, emphasizing the continued importance of horticulture in achieving this goal.

Ramesh et al (2017) in their study observed an increase in the quantity of horticultural produce imported into India during the post-NHM (National Horticulture Mission) period, rising from 0.67% to 4.23%. However, in terms of value, there was a decline in imports from 0.51% to -3.34%. Despite the nation being a leading producer of horticultural crops, the growth in import quantity was not reflected in the value, revealing a contrasting trend. The rise in horticultural produce imports can be attributed to the growing population and increased awareness of nutritional benefits associated with such crops. Jha et al (2019) identified critical concerns within the horticulture sector, emphasizing the need for improvements in productivity through research and development, an increased share of value-added products, geographical diversification of exports, and enhanced infrastructure, including facilities like cold storage and rural roads. The authors emphasized the necessity to strengthen public sector research, taking into account the constraints faced by smallholder farmers who constitute a significant portion of producers. According to Rabha and Sarma (2021), despite India being the world's largest producer of fruits and vegetables, its overall export performance has not been consistently positive. The export volumes have shown a fluctuating trend over the years. During the period from 2009-10 to 2018-19, certain commodities, including walnut, fresh mangoes, cucumber, gherkins (prepared & preserved), and mango pulp, experienced negative growth rates, primarily due to substantial domestic demand. The authors highlighted various constraints, such as quality issues, inadequate infrastructure (including cold storage, markets, roads, and transportation facilities), and significant post-harvest losses, which collectively contribute to lower productivity per unit area.

II. OBJECTIVES AND METHODOLOGY

The primary aim of this paper is to analyze the growth trends in export of horticulture product in India. The study relies on secondary data collected from various sources, including reports from the Agricultural and Processed Food Products Export Development Authority (APEDA), the National Horticulture Board, statistical abstracts, and the Departments of Horticulture within the Government of India. The data spans from the fiscal year 2001-02 to 2020-21. The CAGR and CV were calculated to show the trends and variability in export of horticulture products in India.

III. ANALYSIS AND DISCUSSION

The promotion of agricultural exports is indeed crucial for India, not only for earning valuable foreign exchange but also for achieving the goal of 'Atmanirbhar Bharat' (self-reliant India). India's status as an agricultural economy and a major contributor to the global food basket highlights the significance of harnessing its agricultural potential. The available data from the WTO's Trade Statistical Review in 2022 indicates that India holds a 2.4% share in global agricultural exports and a 1.7% share in imports, underlining its position among the top 10 global agricultural exporters.

India's agricultural prowess is attributed to favorable agro-climatic conditions and a rich abundance of natural resources. The country excels in the production of various commodities such as dairy, cereals, spices, fruits, vegetables, rice, wheat, and cotton, placing it as a leading force in the global agricultural landscape. Noteworthy achievements include the substantial increase in total foodgrain production, rising from 176.39 million tonnes in 1990-91 to 305.45 million tonnes in 2020-21. Additionally, horticultural production has experienced rapid growth, escalating from 96.6 million tonnes in 1991-92 to 326.6 million tonnes in 2020-2021. This consistent growth has contributed to India's trade surplus in agricultural products over the years.

Horticulture, with its emphasis on fruits, vegetables, and other high-value crops, plays a crucial role in India's agricultural exports. Key export destinations for Indian agricultural and allied goods include Bangladesh, the United States of America, China, Vietnam, the United Arab Emirates, Indonesia, Saudi Arabia, Malaysia, Nepal, Egypt, Sri Lanka, the Netherlands, Iran, Iraq, the United Kingdom, Japan, and Thailand. These diverse markets highlight the global demand for India's agricultural products. In this connection, the understanding the dynamics of horticultural production and export trends can provide valuable insights for policymakers, farmers, and other stakeholders to further enhance the country's agricultural export capabilities. Hence, the following table 1 and Graphs 2 depict the export of horticultural products from India during 2001-02 to 2020-21.

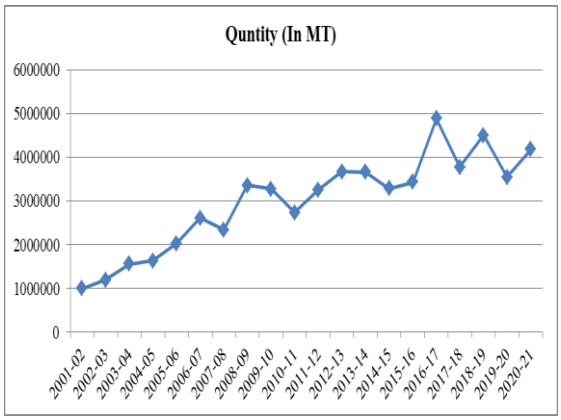
Table – 1: Growth Trends in Export of Horticulture Crops in India

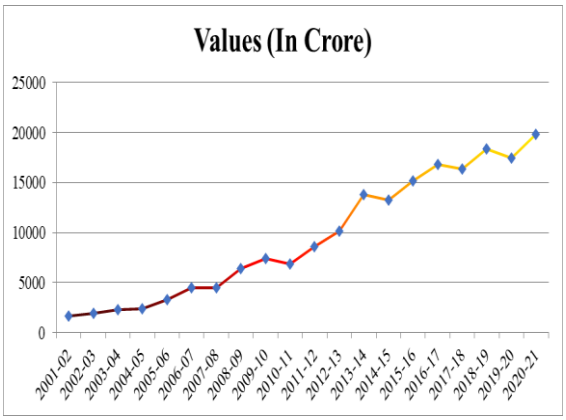
Quantity in MT; Value in Rs. Crore

Crops	Fresh Fruits		Fresh Vegetables		Processed Fruits & Juices		Processed Vegetables		Fruits & Vegetable Seeds		Total	
	Qty	Value	Qty	Value	Qty	Value	Qty	Value	Qty	Value	Qty	Value
2001-02	175923	402	587225	540	131297	406	98384	287	6179	65	999008	1700
2002-03	159222	428	748351	604	139919	438	132780	372	10658	101	1190930	1943
2003-04	227924	467	1024647	912	132924	384	170457	475	5170	54	1561122	2292
2004-05	229673	470	1032154	813	152136	491	207860	550	6727	66	1628550	2390
2005-06	299124	711	1153855	923	224095	659	343755	904	7522	93	2028351	3290
2006-07	344294	864	1632916	1540	250268	843	370698	1117	8104	122	2606280	4486
2007-08	358627	900	1336637	1470	282344	934	351642	1037	10157	142	2339407	4483
2008-09	460442	1105	2140021	2422	295728	1318	458778	1451	8536	120	3363505	6416
2009-10	456939	1343	2063453	2993	343544	1415	405463	1501	8883	145	3278282	7397
2010-11	407738	1208	1635004	2584	293425	1411	388298	1456	11622	185	2736087	6844
2011-12	426611	1674	1975344	2876	353528	1737	483108	1995	15206	288	3253797	8570
2012-13	458094	2173	2391095	3335	370890	2061	431722	2214	17168	348	3668969	10131
2013-14	440370	2971	2364096	5198	420991	2596	423412	2663	17816	411	3666685	13839
2014-15	401250	2496	2036703	4459	408168	2741	431571	3116	12499	427	3290191	13239
2015-16	535670	3368	2095522	5157	404450	3093	380286	2994	13104	529	3429032	15141
2016-17	647736	3910	3408856	5804	430892	3339	390238	3216	11289	523	4889011	16792
2017-18	562155	3853	2328041	4971	428276	3322	447423	3497	14463	671	3780358	16314
2018-19	666731	4643	2919508	5539	445479	3463	460940	3911	16151	849	4508809	18405
2019-20	741574	4696	1903903	4386	446213	3671	442618	4002	14796	723	3549104	17478
2020-21	877823	4833	2260102	4970	405360	3888	626871	5370	17177	808	4187333	19869
Mean	**4,43,896**	**2,126**	**18,51,872**	**3,075**	**3,17,996**	**1,911**	**3,72,315**	**2,106**	**11,661**	**334**	**29,97,741**	**9,551**
CAGR	**7.61**	**15.76**	**6.68**	**13.60**	**6.92**	**14.38**	**6.49**	**15.08**	**5.26**	**16.40**	**6.85**	**14.64**
CV	**42.56**	**74.75**	**38.72**	**60.55**	**35.36**	**65.05**	**34.63**	**68.01**	**34.02**	**80.40**	**36.25**	**65.62**

Source: APEDA, Govt. of India.

Graph – 1: Growth Trends in Export of Horticulture Crops in India





The table 1 and Graph 1 shows the growth trends in the export of horticulture crops in India from 2001-02 to 2020-21. The crops analyzed in the report are Fresh Fruits, Fresh Vegetables, Processed Fruits & Juices, Processed Vegetables and Fruits & Vegetable Seeds. It can be observed that the export of these horticulture crops has seen a steady increase in both quantity and value over the years. Fresh vegetables have shown the highest growth rate in both quantity and value, followed by processed vegetables and fresh fruits. In the case of processed fruits & juices, there has been a fluctuating growth trend with a dip in both quantity and value in 2019-20. The export of fruits & vegetable seeds has also shown a fluctuating trend over the years. It's interesting to note that the mean quantity of horticulture crops exported during this period is 11,661 MT, with a total value of Rs. 334 crore. The Compound Annual Growth Rate (CAGR) of these exports is also positive, indicating a healthy growth trend in the horticulture export industry of India.

In total, the data shows a positive growth trend in the export of all horticulture crops in India. The Compound Annual Growth Rate (CAGR) for all the crops is positive in quantity and values, ranging from 5.26% to 16.40%. The highest CAGR is for Fresh fruits at 7.61% in quantity and Fruits & Vegetable Seeds at 16.40% in values. The lowest CAGR is for Fruits & Vegetable Seeds at 5.26% in quantity and Fresh Vegetable at 13.60% in values. The data also shows that the total export quantity and value have increased steadily over

the years. The total export quantity has increased from 999008 MT in 2001-02 to 4187333 MT in 2020-21, while the total export value has increased from Rs. 1700 crores in 2001-02 to Rs. 19869 crores in 2020-21. The Coefficient of Variation (CV) for all the crops is high, ranging from 34.02% to 80.40%. The highest CV is for Fresh Fruits at 42.46% in quantity and Fruits & Vegetable Seeds at 80.40% in values. This indicates that there is high variability in the export of these crops from year to year. The reasons for the positive growth trend in the export of horticulture crops in India could be attributed to various factors such as an increase in demand for Indian fruits and vegetables in the international market, the availability of high-quality produce, favorable government policies, and the adoption of modern farming practices. The overall data shows that the export of horticulture crops in India has shown a positive growth trend over the years. The CAGR for all the crops is positive, indicating that the export of these crops has been increasing steadily. However, the high CV for all the crops indicates that there is high variability in the export of these crops from year to year.

IV. SUMMARY AND CONCLUSION

The study shows that the export of horticulture crops in India has shown a consistent growth trend over the years. The export volume and value of fresh fruits, fresh vegetables, processed fruits & juices, processed vegetables, and fruits & vegetable seeds have increased significantly from 2001-02 to 2020-21. The CAGR of the export value has also shown a positive trend across all categories. The data also shows that the processed fruits & juices and fresh vegetables categories have shown the highest growth rates in terms of both volume and value. However, there is considerable variability in the growth rates across different categories, as evident from the CV values. It is important to note that the mean values of the export volume and value of all categories are still relatively low, indicating that there is a lot of potential for growth in this sector. The government can take measures to encourage the growth of this sector, such as providing better infrastructure facilities, promoting research and development in agriculture, and incentivizing farmers to grow more horticulture crops. Hence, the export of horticulture crops in India has a lot of potential to grow further, and the government can play an important role in facilitating this growth.

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