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GROWTH OF HORTICULTURE SECTOR IN INDIA: TRENDS AND PROSPECTS

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ABSTRACT

It is acknowledged that the horticulture industry has the ability to increase agricultural revenue, ensure livelihood security, and generate foreign exchange. To realise the sector's potential, however, targeted policy changes are required. The report assesses the development opportunities and analyses the trends in India's horticultural industry. the taking in of a few fruits and vegetables has increased between 1993–1994 and 2011–12 at a rate of 18–23% and 10–20%, respectively, in rural areas 12, however the amount ingested is below the advised nutritional requirements. Fruits and vegetables alone accounted for 19.2% of agriculture's 3.56 percent overall growth rate between 2000 and 2011. In terms of both absolute value and share, the proportion of high-value crops in the agricultural sector's production is likewise rising. About 37% of all agricultural goods are exported through the horticultural sector, and there has been a consistent upward trend in these exports. There are significant differences in growth performance amongst states. The sector's top priorities are increasing productivity through R&D, increasing the proportion of products with added value, geographically diversifying exports, and improving infrastructure, notably cold storage and rural roads. It is necessary to improve public sector research by taking into account the limitations of small holdings, who are the primary producers.

Keywords: *Value Addition, Horticulture Growth, Smallholder, Factor Productivity, Diversification.*

Introduction

Horticulture is becoming more and more recognised as a sunrise industry because of its ability to increase farm revenue, ensure a stable source of living, and generate foreign cash through export. India is able to produce a wide variety of horticulture crops all year round thanks to its unique agro-climatic conditions, vast diversity of crops, and genetic resources. For instance, during the same season each year, India produces the tropical fruit mango as well as the subtropical fruit apple. Fruits, vegetables, flowers, spices, plantation crops like coconut, beverages like tea and coffee, and various medicinal and aromatic plants are all included in the horticulture sector. According to data published by the National Horticulture Development Board, India is the world's second-largest producer of both commodities, trailing only China, producing 13% of the world's fruits and 21% of its vegetables (Horticultural Statistics at a Glance 2017).

The horticulture sector's growth story differs significantly from that of the entire agriculture industry. In the late 1960s and early 1970s, the Green Revolution (GR) began. early 1970s, with a focus on the current problems with food security. India has achieved food self-sufficiency thanks to the subsequent seed-fertilizer-water technology bundles and policy of public investment, price subsidies, and inputs. Diversification into other crop groupings, such as oilseeds, commercial commodities like sugarcane, and horticulture crops, began in the late 1980s. Instead of food security, the main contributing component is the significant revenue generation potential. The process of diversification included livestock in its core.

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The speed of diversification in favour of horticultural crops was further accelerated by economic reforms and policies of the 1990s (Chand et al. 2008).

The rising internal demand for high-value food goods as well as for export markets is to blame for this. The horticultural sector has adopted the diversification strategy used in the agricultural sector.

India introduced numerous technological and policy measures for increasing horticulture in response to the new demands. The newest technological packages that cover production and postharvest are the most significant. Protected cultivation, automation using precise technologies, and the use of biotechnology are a few examples in this direction. Additionally, more recent measures were undertaken to improve infrastructure, such as cold storage, quality control, streamlining, and assistance in entering export markets. Additionally, through contract farming, the government has promoted the development of fresh institutional frameworks to increase vertical and horizontal links. The power of collectives should be capitalised upon as a further important factor. It is encouraged to form farmer producer cooperatives because they have the potential to fundamentally alter the input and service delivery systems.

There is evidence that horticulture crops have a higher net return than other crops.

By 2022, the Indian government wants to double farmers' incomes. It is becoming increasingly clear that horticulture will continue to be a key part of the plan to reach this objective.

This essay aims to analyse the shifting patterns and trends in the horticulture industry's growth, the lessons to be learned from the past growth story, and the broad policy frameworks needed to advance horticultural growth in line with shifting consumer needs.

Method and Materials

The paper mostly makes use of secondary information gathered from various government sources. Data on production was derived from the Ministry of Agriculture and Farmers Welfare publication Horticultural Statistics at a Glance, 2017, while data on area under various crops was taken from the Directorate of Economics and Statistics' Land Use Statistics data source. The Agricultural and Processed Food Products Export Development Authority's (APEDA) database was used to compile the export and import data. The study makes use of share and trend growth trends.

Results and Discussion

- **A Shift in the Way Horticulture Goods are Consumed**

Fruit and vegetable consumption, among other horticulture products, are on the rise. According to Table 1, between 1993–1994 and 2011–12, consumption of the majority of fruits increased in rural regions at an average annual growth rate of 18–23% for fruits and 10- 20% for vegetables. Rural areas have had larger numbers. growth in consumption relative to urban regions, with the exception of apples. The increase rate was lower for items like potatoes and onions, which are frequently consumed. Mango consumption per person per month has increased during the time from 60 to 160 g in rural areas to 120 to 202 g in urban areas. Though intake of high-value fruit was just 58 g in rural regions and 191 g in urban areas, this is still rather low. According to the recommendations of the World Health Organization, the low level of fruit and vegetable consumption may not be sufficient to meet the nutritional requirements. Compared to cereal grains, demand for fruits and vegetables is more income elastic. Research has indicated that between 1983 and 2004, consumers' budgeting percentage of total food expenditures for fruits and vegetables increased across all income categories (Kumar et al. 2011). Horticultural exports have also demonstrated improved prospects, and this pattern is likely to persist. Noteworthy in this regard is that by 2030, the demand for fruits and vegetables would rise to 110 and 180 million tonnes, respectively, representing increases of 155 and 95% over the base year of 2000. (ICAR 2011). Productivity must be enhanced to keep up with the rising demand, and the key to doing so is research-induced total factor productivity growth (Suresh and Mathur 2016). Trend in the value of the horticultural sector's production.

According to information published by the Central Statistical Office, the value of output (VOP) from the agricultural sector as a whole increased at a pace of 3.56% per year from 1999–2000 to 2010–2011, reaching a total value of '794.7 thousand crores as of 2010–2011. (Table 2). Horticulture products, such as cash crops, spices, fruits, and vegetables, make up around 1.98%, 2.33%, and 19.24% of this total, respectively. High growth rates are observed for cash crops (12.1%) and fibre (9.56%) among these commodities.

Table 1: Trend in Major Fruits and Vegetable Consumption

Crop		1993-94	1999-00	2004-05	2009-10	2011-12	CAGR
Banana (No.) Rural	Rural	2.20	2.48	2.37	3.86	4.18	18.84
	Urban	4.48	5.00	4.14	6.65	6.69	11.48
Mango (g)	Rural	60.00	100.00	90.00	108.00	160.00	22.61
	Urban	120.00	160.00	110.00	158.00	202.00	10.84
Apple (g)	Rural	30.00	30.00	30.00	45.00	58.00	18.81
	Urban	110.00	80.00	115.00	158.00	191.00	19.53
Potato (kg)	Rural	1.24	1.61	1.33	1.67	1.97	10.02
	Urban	1.08	1.32	1.14	1.37	1.61	8.73
Onion (g)	Rural	460.00	580.00	560.00	741.00	842.00	15.65
	Urban	560.00	720.00	720.00	854.00	951.00	13.09
Tomato (g)	Rural	290.00	350.00	340.00	537.00	586.00	20.14
	Urban	460.00	550.00	530.00	757.00	806.00	15.50

Source: National Sample Survey Office

Fruits and vegetables (3.61%) and spices (4.7%) outpaced the industry's overall average growth rate of 3.56% annually.

According to a decomposition analysis, fruits and vegetables contribute the most to overall growth—roughly 19.24%—and are closely followed by cash crops—10.48%. About 3.33% of the total was made up of spices.

Together, the related agricultural industries of cattle and fisheries have contributed 37%. This demonstrates unequivocally that horticulture, a high value commodity, has contributed to around one third of the growth in the total value of output from the agricultural sector as a whole. This, among other things, demonstrates that high value crops accounted for 49.7% of the overall value of agricultural output in 2011, up from 44.7% in 2000. On the other hand, the overall share of the crop sector has decreased from 68.9% to 64.7%.

Diversification in favour of horticulture commodities is evident both in terms of area and value.

The proportion of various crops to the overall area used for agriculture reflects this.

Table 3 displays the modifications in the percentage of India's main crops and crop categories. Food grains, such as cereals and pulses, have a smaller area share than commercial crops like cotton and sugarcane and horticulture crops. This is evident from the table. The area under food grains decreased by 4 percentage points from 1990–1991 to 2014–2015, falling to 51.34%, while the area share of fruits and vegetables climbed from 3.7% to 5.0% and that of cotton and sugarcane decreased from 4% to 2% and 6.3% 2.77%, respectively.

The overall area under horticulture crops expanded from approximately 16.5 million ha to 25 million ha between 2001-02 and 2016-17, at a 3.0% annual trend growth rate.

As a result, the overall production of horticultural products rose from 146 million tonnes to 295 million tonnes, growing at a rate of 5.8% each year. With a growth rate of 2.76%, yield growth is the main driver of output growth. This indicates that, as compared to the base year of 2001–2002, there was a growth of 41% in area, 94% in production, and 38% in productivity in 2016–17. (Table 4). 2.76% productivity growth may not be enough to keep up with demand for products related to horticulture. A multifaceted approach is necessary to boost productivity. Given the restricted potential to expand the area under cultivation beyond a certain point, intensive cultivation with an eye toward maintaining sustainability may be the solution. Systems for agricultural research and development play a big part in this.

Changing the crop duration is a key tactic that can work with multiple crops. With a rise in the percentage of area planted in vegetables and fruits, the crop composition in the horticultural industry is gradually changing. From 61% in 2001–2002 to 68% in 2014–15, it has increased. Due to those commodities' relatively high returns in comparison to other horticulture commodities, the region has increased both in absolute terms and in terms of share. This is a result of the consumption basket becoming more diverse, particularly in metropolitan areas where high value crops and livestock products are consumed. Even so, the average person consumes fewer fruits and vegetables than what is necessary for good nutrition.

The demand for fruits and vegetables is anticipated to increase in the future due to the anticipated increase in per capita income and changes in dietary preferences.

The proportion of horticultural commodities in the value of output has increased as a result of increased horticulture sector productivity, as well as changes in area and price. According to the data, the share of the horticultural industry as a whole has climbed from 19.8% in 1990–1991 to 27.6% in 2012–2013, at current prices. It's also possible that a favourable pricing for horticulture crops played a role in this Horticultural crop outperform other crops in terms of output value on a per-hectare basis.

For instance, as of 2012–2013, the price of rubber, tea, coffee, vegetables, and fruits ranged from '1.40 lakh to '3.3 lakh/ha Vegetable production, valued at '3.3 lakhs/ha, was nearly 8 times greater than cereal production.

In majority of the horticultural commodities, productivity on a per ha basis increased more steeply between 2005–06 and 2012–13. Vegetable farming pays well, but it also requires a lot of labour on a vast scale. Given the labor-intensive nature, the area Youth in agriculture would have employment opportunities under the crop. In that regard, the diversification towards high value goods absorbs labour and helps to create jobs (Joshi et al. 2004).

The trend from 2001-02 to 2016-17 demonstrates a growth rate in output of 5.3% per year, with an expansion in area at a rate of 2.8% and the remaining increase in productivity Disaggregated growth study shows larger area growth for vegetables, which climbed from 6.1 million ha in 2001-02 to 10.3 million ha in 2016-2017. As a result, productivity went from 14.4 t/ha to 17.0 t/ha, and production rose from 88.6 m tonnes to 175.0 m tonnes. Fruits experienced a 3.5% annual area growth rate and a 5.6% annual production rise.

However, the rate of productivity growth has increased.

Table 2: Trend in the Productivity of Crop Groups in India

Crop Group	Value of output (2012-13) ₹ Lakh	Productivity/HA (at Current Prices) 2005-06	Productivity/HA (at Current Prices) 2012-13
Cereals	38203060	15042	38824
Pulses	6237404	9818	28877
Oilseeds	11422272	16891	39252
Oilseeds	11422272	16891	39252
Sugarcane	6827926	45945	1,26443
Cotton	6851528	20438	58064
Vegetables and fruits	31958384	135876	326106
Condiments and spices	4634264	50540	140432
Rubber	1442233	83630	282791

Source: Land use statistics, Ministry of Agriculture and

About about'6622 crores as of 2015–16, making up almost 44% of all exports Between 2008 and 2015, imports of horticulture products climbed four times in value and by two times in quantity shows that, with the exception of onions (whose import is extremely variable), imports of vegetables, fruits, and flowers have increased. Exotic fruits and vegetables are in high demand domestically and are growing. In order to keep horticulture's trade balance in the black India needs to export more of its goods, particularly those with value added. A bigger part in this would be played by export rules and the establishment of processing facilities. Infrastructure development and positive institutional improvements are needed to accelerate the sector's growth (Birthal et al. 2008). exporting countries. The investigation showed that India's export markets are quite small, especially for fruits and vegetables.

Growth of Horticulture Sector

Table 3: Direction and Price Realization of Major Horticultural Export, Across Major Destinations, 2015-16

Commodity	Country 1	Country 2	Country 3	Country 4	Country 5
Floriculture	U S A	Germany	Netherland	U K	UAE
% share in export	23.76	10.61	9.25	10.45	6.58
Unit price realization (₹/kg)	181.65	250.88	262.21	228.48	141.45
Fresh onions	Bangladesh	Malaysia	Sri Lanka	UAE	Nepal
% share in export	33.85	17.50	12.17	11.13	5.09
Unit price realization (₹/kg)	15.80	17.70	17.70	17.50	18.60
Fresh Mangoes	UAE	Saudi Arabia	Kuwait	Qatar	U S A

Exports of fresh mangoes and onions are concentrated primarily on the neighbouring nations. Additionally, it should be emphasised that the price realisation for products with minimal processing is extremely low. The exports' narrow geographic distribution presents difficulties and increases volatility potential. Consequently, it is necessary to diversify export destinations.

- Only a sophisticated processing facility can provide this.
- To do this, entrepreneurship development in horticulture processing must be encouraged

Conclusion

Indian agriculture is typically characterized by a poor profit margin. Additionally, the income from the farm is insufficient to support a family (Chand et al 2011). In this situation, diversification toward high-value horticultural crops is a key method to increase farmers' revenue by double. The area of horticultural crops is growing, both overall and as a percentage of the gross cropped area, according to aggregate data. Additionally, the proportion of high-value crops in the total value of output is rising. About one third of the increase in the value of output from the total agricultural and related industries is attributable to horticulture crops. The market for horticultural goods is becoming more widespread and lucrative due to rising income patterns. edible grains with better value productivity, which boosts farmers' income.

The trend analysis has revealed significant regional variance in the performance of fruit and vegetable growth.

In general, there has to be some improvement in India's poor rate of productivity growth. Enhancing total factor productivity growth through research and development is the main approach to achieving this (Suresh and Mathur 2016). It involves both the public and private sectors significantly. Given the predominance of small holders in horticulture production, public sector research must be bolstered to develop better management and technology Horticultural products are primarily exported as fresh produce or products that have undergone minimal processing, which results in poor value realisation.

To encourage value addition and the growth of entrepreneurship in the processing of horticulture products, immediate action is required. The export market demands adherence to established quality standards, thus attention has to be taken at every point along the value chain. To decrease price volatility, spread risk, and increase export volume, the current base of export destinations has to be broadened.

The development of infrastructure, such as cold storage, marketing yards, and rural highways, as well as the widening and deepening of processing facilities, will be the main tools in the development of the horticultural sector.

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