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Growth trends in export of green chilli from India

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ABSTRACT

The current research investigates the India's Green Chilli exports from 2005–06 to 2024–25, focusing specifically on export quantity, export value, export price and performance by Major destination. The analysis used compound annual growth rates (CAGRs) for both the overall period and two sub-periods. The results show a strong long-term trend in export performance, with export quantity, value and price growing at CAGR of 8.34%, 18.10% and 9.01%, respectively. Export value increased the most, indicating a significant gain in export earnings over the study period. Growth was relatively stronger during Period I, however a slowdown was noticed in Period II, particularly in export prices which recorded only 2.85 per cent growth and was statistically non-significant. Country-wise data revealed significant variance among export destinations. Oman experienced the greatest overall increase in export quantity and value, followed by Qatar and Bangladesh, while the UAE demonstrated constant performance. Kuwait likewise witnessed rapid expansion, while the United Kingdom suffered a decrease during Period II. The findings indicated that India's exports have promising long-term potential, with further market diversity and price realization required to support future growth. Oman showed high growth rate in quantity (49.87%) and Value (64.39%) while United Kingdom showed highest price (12.90%).

Keywords: Growth, Export, India, Green Chilli

Introduction

Green chili is a key high-value horticultural crop that connects agricultural output to domestic food consumption and global markets. As a fresh crop, its commerce is determined not only by production levels, but also by perishability, quality standards, market prices, transportation options, and the ability to preserve freshness after harvest. India has a significant competitive edge in chili cultivation due to its diversified production settings, extensive marketing network, and experience supplying worldwide markets. The rising demand for Indian green chilies in the Middle East, neighboring Asian countries and other international markets has provided opportunities for producers, dealers, and exporters. At the same time, volatility in export quantity and unit value, stringent food safety rules, pesticide residue limits and limited post-harvest infrastructure can all have an impact on Indian produce's competitiveness. Maharashtra is especially crucial in this perspective due to its rising production base and access to important local and export markets, with cultivars like G4 having significant commercial value. As a result, analyzing green chili export patterns is critical for understanding variations in export volume, value, price realization, destination-specific performance and growth over time. Such an assessment can provide valuable insights for boosting market diversification, increasing export competitiveness, and devising appropriate strategies for the long-term expansion of India's green chili trade.

Materials and Methods

The study was primarily based on secondary data. The time series data were collected over a 20-year period, from 2005-06 to 2024-25. Secondary data on the quantity and value and price of green chili exported by India to major importing destinations was obtained from the Directorate of General Commercial Intelligence and Statistics (DGCIS), Government of India, and the National Agricultural Processed Food Product Export Development Authority (APEDA).

Tools of analysis

Compound annual growth rate

Compound Annual growth rate provides a smoothed rate for easy comparison across time periods. Compound annual growth rate (CAGR) was calculated to identify the trend in green chilli exports from India. This analysis used annual time series data for the period 2005-2025 in terms of export quantity and export value and export price.

$$Y = ab^t$$

where,

Y = Country wise exported quantity (MT/yr) and value (₹ lakh) of Green Chilli

a = Intercept

b = Regression coefficient

t = Time variable (2005 to 2025)

$$\text{CAGR (r)} = [\text{Antilog (b)} - 1] \times 100$$

Where,

r = Compound Growth Rate in per cent

Result and Discussion

Export performance of green chilli from India

The [table 1](#). Indicate the compound annual growth rate (CAGR) of export quantity, value and price over the study period. Export amount increased at 8.34% CAGR, suggesting a constant increase in export

quantity over time. Export value showed the greatest CAGR of 18.10 per cent, indicating a significant growth in financial gains from exports.

Export prices increased at a CAGR of 9.01 per cent, indicating an overall increase in the average price realized per kilogram. The significantly higher growth rate of export value relative to export quantity suggests that price realization had a vital role in raising export revenues. Overall, the CAGR result demonstrate a positive growth pattern in export quantity, value and price, with export value experiencing the most rapid annualized growth during the study period.

(2005-06 to 2024-25)

(* , ** & *** indicates 10, 5 & 1 per cent level of significance and NS denotes Non -significant)

Table 1. Growth Rates in Export Quantity, Value and Price of Green Chilli from India

Sr. No	Year	Export Quantity (MT)	Export Value(₹Lakhs)	Export Price (₹/kg)
1	2005-2006	8764.72	1482.57	16.92
2	2006-2007	18,187.83	2,216.38	12.19
3	2007-2008	26,894.86	4,372.14	16.26
4	2008-2009	30,198.13	4,832.05	16.00
5	2009-2010	30,654.67	6,287.07	20.51
6	2010-2011	28,441.66	6,122.29	21.53
7	2011-2012	46,702.98	9,824.21	21.04
8	2012-2013	35,991.98	9,154.15	25.43
9	2013-2014	46,540.18	14,086.95	30.27
10	2014-2015	32,138.20	13,613.60	42.36
11	2015-2016	43,946.59	18,647.46	42.43
12	2016-2017	45,008.30	21,707.69	48.23
13	2017-2018	44,903.27	22,074.05	49.16
14	2018-2019	39,735.17	21,311.18	53.63
15	2019-2020	44,415.74	25,976.32	58.48
16	2020-2021	92,282.77	39,364.79	42.66
17	2021-2022	52,370.24	31,046.91	59.28
18	2022-2023	51,132.00	37,076.27	72.51
19	2023-2024	79,852.38	45,925.59	57.51
20	2024-2025	110,907.82	55,466.86	50.01
CAGR (%)		8.34***	18.10***	9.01***

(Source: DGCIS, APEDA)

Growth Rates in Export of Green Chilli from India

Table 2 displays the compound annual growth rate (CAGR) of export quantity, value, and price for Periods I, II and the entire study period. Export quantity increased at a 13.55 percent per year during Period I, then moderated to 9.22 per cent in Period II, for an overall CAGR of 8.34 per cent. Export value increased at a much higher rate of 26.43 per cent in Period I, but fell to 12.34 percent in Period II; yet, the total CAGR remained substantial at 18.10 percent. Export prices increased by 11.35 percent during Period I but only 2.85 per cent in Period II, which was statistically non- significant. Throughout the study period,

export prices increased at an overall CAGR of 9.01 per cent, demonstrating a favourable long-term shift in price realization. The findings indicate that export growth was significantly stronger during Period I, notably in terms of export value and price. In Period II, the slower growth in quantity and price suggests that export performance has moderated. Overall, export value had the highest yearly growth, showing its tremendous expansion during the study period.

Table 2. Growth Rates in Export of Green Chilli from India

Period I (2005-06 to 2014-15)

Period II (2015-16 to 2024-25)

Overall Period (2005-06 to 2024-25)

Particular	Quantity (MT)			Value (₹/Lakhs)			Price (₹ / Kg)		
	Period I	Period II	Overall Period	Period I	Period II	Overall Period	Period I	Period II	Overall Period
CAGR (%)	13.55***	9.22*	8.34***	26.43***	12.34***	18.10***	11.35***	2.85 NS	9.01***

(* , ** & *** indicates 10, 5 & 1 per cent level of significance and NS denotes Non-significant)

Period wise Growth Rates in Export of Green Chilli from India

[Table 3](#) indicates country-specific growth in export quantity, value, and price between Periods I and II. During Period I, Oman had the

highest growth in quantity (131.42%) and value (140.39%), while Kuwait had the highest growth in Period II, at 78.88% and 107.53%, respectively. Throughout both periods, the UAE experienced sus

tained and strong expansion in both quantity and value. During Period II, however, the UK saw a considerable decrease in both quantity and value. Overall, India experienced positive growth in quantity and value, however growth rates slowed from Period I to II. Export price

growth likewise decreased from 11.35% to 2.85%, with the latter being statistically non-significant.

Period I (2005-06 to 2014-15)

Period II (2015-16 to 2024-25)

Table 3. Period wise Growth Rates in Export of Green Chilli from India

Sr. No.	Country	Quantity (MT)		Value (₹ Lakhs)		Price (₹/ Kg)	
		Period I	Period II	Period I	Period II	Period I	Period II
1	UAE	11.84 **	7.35***	23.55 ***	13.18 ***	10.47***	5.43 ***
2	Bangladesh	1.98 NS	12.56 NS	9.6 NS	13.33 NS	7.47 **	0.68 NS
3	Qatar	72.79 ***	4.05 NS	78.78 ***	9.69 **	3.47 NS	5.43 ***
4	Oman	131.42 ***	7.41 NS	140.39 ***	17.50 *	3.88 NS	9.39 **
5	UK	43.21 ***	-19.55***	56.59 ***	-13.47 ***	9.34 *	7.56 ***
6	Bahrain	3.58 NS	-2.35 NS	12.67 **	5.38 NS	8.78 **	7.92 ***
7	Kuwait	22.89 NS	78.88 ***	38.09 *	107.53 ***	12.37***	16.02***
8	Nepal	-3.66 NS	8.43 NS	10.71 *	9.63 NS	14.91***	1.11 NS
9	USA	15.83 *	-1.00 NS	23.86 **	6.40 NS	6.93 NS	7.48 ***
10	Others	29.66 **	18.89 ***	39.71 ***	14.25 **	7.75 ***	-3.91 NS
	India	13.55***	9.22**	26.43***	12.34***	11.35***	2.85NS

(*, ** & *** indicates 10, 5 & 1 per cent level of significance and NS denotes Non- significant)

Country wise Growth Rates in Export of Green Chilli from India

Table 4 displays the country-wise CAGR of export quantity, value and price throughout the study period. Oman experienced the greatest increase in quantity (49.87%) and value (64.39%), showing a rapid rise of exports to this market. Qatar experienced tremendous growth, with CAGRs of 34.89% in quantity and 45.54% in value. Bangladesh saw a 23.39% increase in quantity and 27.77% in value. Among the key destinations, the United Kingdom, Bahrain and Kuwait experi-

enced positive and significant growth in all three metrics. The USA experienced only a 1.45% gain in quantity, which was statistically non- significant, but its export value and price grew dramatically. The Others category similarly experienced non-substantial growth in quantity but high growth in value and price. Overall, India's exports increased at high CAGRs of 8.34% in quantity, 18.10% in value and 9.01% in price, demonstrating a positive long-term increase in export performance.

Table 4. Country wise Growth Rates in Export of Green Chilli from India

Sr. No	Country	(CAGR %)		
		Quantity (MT)	Value (₹Lakhs)	Price (₹/ Kg)
1	UAE	5.53 ***	16.30***	10.20***
2	Bangladesh	23.39 ***	27.77 ***	3.55 ***
3	Qatar	34.89***	45.54 ***	7.90 ***
4	Oman	49.87 ***	64.39 ***	9.68 ***
5	UK	7.03 *	20.84 ***	12.90 ***
6	Bahrain	4.60***	16.28 ***	11.16 ***
7	Kuwait	5.24***	17.29 **	11.44 ***
8	Nepal	3.16 *	7.63 ***	4.34 ***
9	USA	1.45 NS	13.08 ***	11.47 ***
10	Others	1.96 NS	12.95 ***	10.78 ***
Total		8.34***	18.10***	9.01***

(*, ** & *** indicates 10, 5 & 1 per cent level of significance and NS denotes Non-significant)

Conclusion

India's export performance remained favourable throughout the study period, with export quantity, value and price all indicating positive growth. The overall CAGR was 8.34% for quantity, 18.10% for value and 9.01% for price, demonstrating a significant increase in export revenues. Growth was somewhat higher in Period I, while Moderation was noted in Period II. There was considerable variety among destination nations, with Oman showing the biggest long-term growth in export quantity and value, followed by Qatar and Bangladesh. The UAE maintained stable growth across all important metrics, while Kuwait had extraordinary increase during Period II. In contrast, the UK saw a decrease in export quantity and value over the latter period.

Suggestions

1. By increasing Green Chilli production, productivity, quality and consistency to satisfy the demands of foreign consumers, export growth can be increased.
2. To increase the quantity and value of Green Chilli exports, more focus should be given on high growth markets like Oman, Qatar, Bangladesh and Kuwait.

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