

# Export Performance of Papaya from India

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## ABSTRACT

The study was conducted to know the export performance of fresh fruits from India for a period of 15 years (2006-07 to 2020-21). Compound annual growth rate and instability index analysis were used for the analysis and interpretation of the results. The export quantity of fresh papaya showed a negative growth rate of 3.45 per cent and was significant at 5 per cent whereas its export value has got a positive growth rate of 7.68 per cent and found to be significant at 1 per cent.

## INTRODUCTION

India has witnessed an increase in horticulture production over the last few years. Significant progress in terms of area and production of fruits has been made. Over the last decade, the area under horticultural crops grew by 2.60 per cent per annum and annual production increased by 4.80 per cent. The production of horticultural crops was to 311.71 million tonnes from an area of 25.43 million hectares during 2017-18. The production of fruits has increased from 50.90 million tonnes (2004-05) to 97.35 million tonnes during 2017-18 (Horticulture statistics at a glance, 2018). We are the 2<sup>nd</sup> largest producer of fruits after China and our presence in global market is significant. Among different fruits of

India, papaya ranks 4<sup>th</sup> in the production in the country. The vast production of this fruit as fresh fruits base offers India tremendous opportunities for export. With this backdrop the present study was conducted to estimate the growth rate in export of fresh papaya fruits from India and to assess the instability in their export.

### Methodology:

**Data:** The study was based on secondary data on export of fruits of India (papaya) over the period of 15 years (2006-07 to 2020-21).

### Analytical techniques:

### Growth rate analysis

For computing compound annual growth rate of export of fruits from India, the exponential function of the following form was used.

$$Y = a b^t e^{U_t} \dots \dots \dots (1)$$

Where,

Y = Export (tonnes/000'tonnes/Crore Rs.)

a = Intercept

b = Regression coefficient

'a' and 'b' are the parameters to be estimated

t = time period

$U_t$  = Disturbance term in year 't'

The equation (1) was transformed into log linear form and was written as;

$$\log Y = \log a + t \log b + U_t \dots \dots \dots (2)$$

Equation (2) was estimated by using Ordinary Least Squares (OLS) technique.

Compound annual growth rate (g) was computed by using the below formula;

$$g = (b - 1) * 100 \dots \dots \dots (3)$$

Where,

g: Compound growth rate in per cent per annum

b: Antilog of log b

The standard error of the growth rate was estimated and tested for its significance with student's t test.

**Instability analysis:**

- The coefficient of variation was used as the measure of variability in export of fresh fruits from the country. The coefficient of variation or index of instability was computed by using the following formula;

Standard Deviation ( $\sigma$ )

$$CV = \frac{\sigma}{\text{Mean}(\bar{X})} \times 100 \dots \dots \dots (4)$$

Mean ( $\bar{X}$ )

- Linear trend was fitted to the original data of export of major fresh fruits from the country for a period of 15 years (2006-07 to 2020-21). The trend coefficients were tested for their significance. Whenever the trend of series found to be significant; the variation around the trend rather than the variation around mean was used as an index of instability. The formula suggested by Cuddy and Della was used to compute the degree of variation around the trend. The Coefficient of variation was multiplied by the square root of the difference between the unity and coefficient of multiple determinations ( $R^2$ ) to obtain the Instability Index.

$$\text{Instability index } (I_x) = CV * \sqrt{(1 - R^2)} \dots \dots \dots (5)$$

**Results and Discussion:**

**Compound annual growth rate and stability of export of papaya from India**

The compound annual growth rate and instability index of export of papaya from India have been presented in Table 1. It is evident from the Table that the quantity of fresh papaya exported from India is having the negative annual growth rates of 3.45 per cent and found significant at 5 per cent whereas the export value has got the positive growth rate of 7.68 per cent and was significant at 1 per cent. The quantity of export of fresh papaya was decreased from 10344 tonnes during 2006-07 to 7618.73 tonnes during 2020-21 whereas in terms of value it was increased from Rs. 11.60 crores in 2006-07 to Rs. 18.74 crores in 2020-21. The average quantity of export of fresh papaya was 12553.55 tonnes and in terms of value it was around Rs. 29.55 crores.

The instability in export value of fresh papaya was more (35.70 %) compare to its export quantity (23.59 %). The export quantity of fresh papaya was highest in the year 2011-12 (18672 tonnes) and was lowest in the year 2020-21 (7618.73 tonnes) and showed instability to the

extent of 23.59 per cent. The current findings are in line with the findings of Ashoka (2013) and Shreedevi (2015).

**CONCLUSIONS:**

The compound annual growth rate of export value of fresh papaya, export quantity has showed a negative annual growth rate and its export value has got a positive annual growth rate and the instability was found to be more in case of export value than that of export quantity.

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**Table 1. Compound annual growth rate and stability of export of papaya from India**

Year	Fresh papaya	
	Quantity (Tonnes)	Value (Rs. Crore)
Average	12553.55	29.55
CAGR	-3.45**	7.68***
Instability Index	23.59	35.70

Source: www.indiastat.com

www.apeda.com

**Note:** \*\*\* Significance at 1% level

\*\* Significance at 5% level