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The growth in area, production and productivity and export of basmati rice in India

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Abstract

The present study has been conducted on area, production, productivity and export of basmati rice of India. The nature of data used for study is entirely based on secondary source of data from 1988-89 to 2017-18. The growth in area, production, productivity and export of basmati rice was measured by compound growth rate was used for working out the in area, production, productivity and export of basmati rice. The compound growth rates (CGR) in India's total export of basmati rice were year to year from 1988-89 to 2017-18. It is divided in to two Periods, Period - I (1988-89 to 2002-03), Period - II (2003-04 to 2017-18) and overall Period (1988-89 to 2017-18). The per cent CGR of total national export in the Period - I was 19 per cent and in Period - II area was 15.09 per cent. The per cent CGR of total national export in the overall Period was 17.52 per cent. The per cent CGR of total agricultural export in the Period - I was 16.97 per cent and in Period - II area was 16.46 per cent. The per cent CGR of total agricultural export in the overall Period was 15.34 per cent.

Keywords: CGR, area, production, productivity and export

Introduction

India is the main producer and main exporter of basmati rice. India produces about 70% of the world's basmati rice, and the rest is provided by Pakistan, the Philippines and China (Sindhu *et al.*, 2014). The super-long fine particles will extend twice its unique size anyway, and after cooking, present a high-quality, delicate and feather-like surface, a more pronounced smell and a unique flavor. The fare of basmati rice is mainly fixed, and it provides strong prices for basmati rice in the global market, making basmati rice the most expensive product in the world.

Basmati rice is an important rice variety with important commercial significance. It is the main category of rice that brings higher value in the local market and fare exchange. The fragrant rice that India sends to many countries is just like non-fragrant rice. In 1992-93, the export volume of basmati rice was only 286,000 tons, calculated in rupees 70 million. By then, the trading volume of basmati rice increased, reaching 710,000 tons in 2002-03, and its value was recognized. The trade volume of 2.06 billion basmati rice has increased substantially, reaching 34.6 billion tons, and its value has been recognized. It was 19 billion in 2012-13. The increase in ticket prices indicates that there is greater potential for the basmati rice trade and for understanding additional unfamiliar trade (Shwetha 2010).

Materials and Methods

The secondary data was collected for thirty years period i.e., from 1988-89 to 2017-18. The period of study was divided into two sub periods, period I (from 1988-89 to 2002-03), period II (from 2003-04 to 2017-18) and overall period (1988-89 to 2017-18). The compound growth rates were estimated by using following exponential growth function.

$$Y = a b^t$$

Where,

Y = Area/Production/Productivity/Export quantity/export value /Unit value of Basmati Rice production.

t = Time variable

b = Regression coefficient

a = Intercept.

The average annual compound growth rates 'r' will be computed by using the following formula.

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

Where,

r = Compound growth rate.

Significance of growth rate was judged by student's "t" test.

Results and Discussion

India's share of Basmati export to total agricultural export

Basmati export in the year 1988-89 was of Rs. 409.30 crore of the Agricultural export of Rs. 6360.33 crore which is 6.44% of the Agricultural export share of India. In the year 2017-18 the Agricultural export was of Rs. 251563.94 crore and the total Basmati export has reached to Rs. 26870.17 crore and the percent share of basmati rice was increasing to the total agriculture export from India.

Table 1: India's share of Basmati export to total agricultural export (In Rs. Crore)

Year	Agricultural Export	Basmati Export	Per cent share of Basmati Export to total Agri export (%)
1988-89	6360.33	409.30	6.44
1993-94	19042.36	1142.00	6.00
1998-99	28772.84	1945.42	6.76
2003-04	53907.45	2999.49	5.56
2008-09	142485.41	13315.96	9.35
2013-14	236352.44	25282.34	10.70
2017-18	251563.94	26870.17	10.68

Compound Growth Rate (CGR) of Total National, Agricultural and Basmati Rice export

The compound growth rate (CGR) in India's total export of basmati rice was year to year from 1988-89 to 2017-18. It is divided in to two Periods, Period - I (1988-89 to 2002-03), Period - II (2003-04 to 2017-18) and overall Period (1988-89 to 2017-18). The per cent CGR of total national export in the Period - I was 19 per cent and in Period - II area was 15.09 per cent. The per cent CGR of total national export in the overall Period was 17.52 per cent. The per cent CGR of total agricultural export in the Period - I was 16.97 per cent and in

Period - II area was 16.46 per cent. The per cent CGR of total agricultural export in the overall Period was 15.34 per cent. The per cent CGR of Total Basmati Export in the Period - I was 16.96 per cent and in Period - II area was 22.63 per cent. The per cent CGR of Total Basmati Export in the overall Period was 17.65 per cent.

Table 2: Compound Growth Rate (CGR) of Total National, Agricultural and Basmati Rice export

Periods	Total National Export	Total Agricultural Export	Total Basmati Export
Period - I	19.00*	16.97*	16.96*
Period - II	15.09*	16.46*	22.63*
Overall Period	17.52*	15.34*	17.65*

Note: * - denotes significant at 5% level

Compound Growth Rate (CGR) of area, production and productivity of Basmati rice in India

For the computation of Compound Growth Rate (CGR) of area, production and productivity of basmati rice in India data was collected from year 1988-89 to 2017-18. It is divided in to three Periods, Period - I (1988-89 to 2002-03), Period - II (2003-04 to 2017-18) and overall Period (1988-89 to 2017-18). The CGR of area of basmati rice in the Period - I was 5.76 per cent and in Period - II area was 7.67 per cent. The per cent CGR of area of basmati rice in the overall Period was 5.45 per cent. . All the above CGR are significant at 5% level of significance. The per cent CGR of Production of basmati rice in the Period - I was 6.04 per cent and in Period - II area was 9.01 per cent. The per cent CGR of production of basmati rice in the overall Period was 9.40 per cent. The CGR percent in basmati rice is significant at 5% level of significance. The per cent CGR of Productivity of basmati rice in the Period - I was 0.25 per cent and in Period - II area was 1.24 per cent. The per cent CGR of productivity of basmati rice in the overall Period was 3.75 per cent. Productivity of Period - I is non - significant at 5% level of significance and the Period - II and Overall Period both are significant at 5% level of significance.

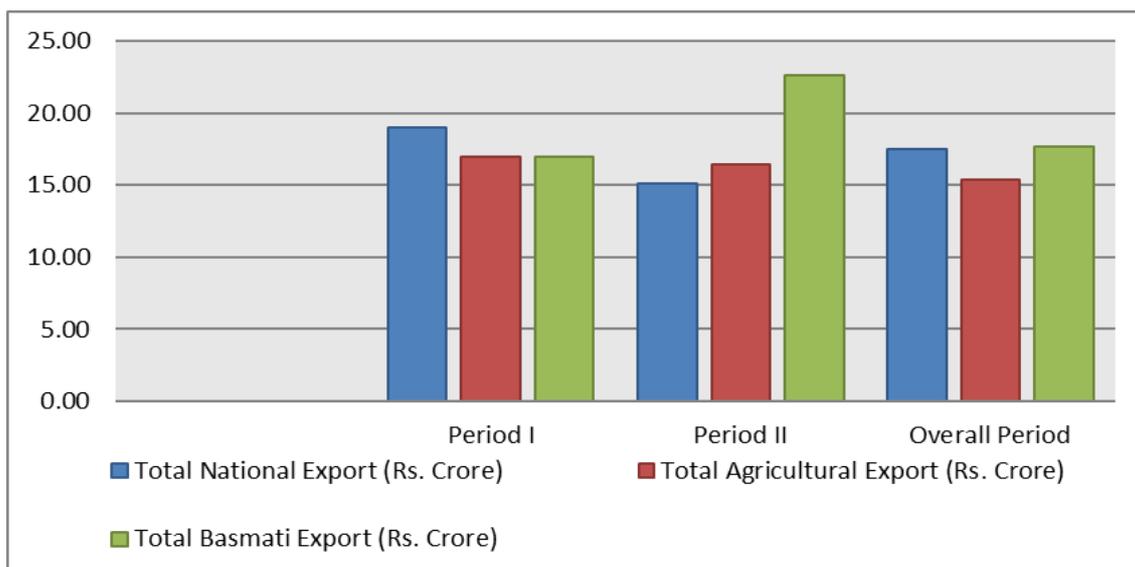


Fig 1: Compound Growth Rate (CGR) of Total National, Agricultural and Basmati Rice export

Table 3: Compound Growth Rate (CGR) of area, production, productivity Basmati Rice in India

Periods	Area (in per cent)	Production (in per cent)	Productivity (in per cent)
Period - I	5.78*	6.04*	0.25#
Period - II	7.67*	9.01*	1.24*
Overall Period	5.45*	9.40*	3.75*

Note: * - denotes significant at 5% level
- denotes non significant at 5% level

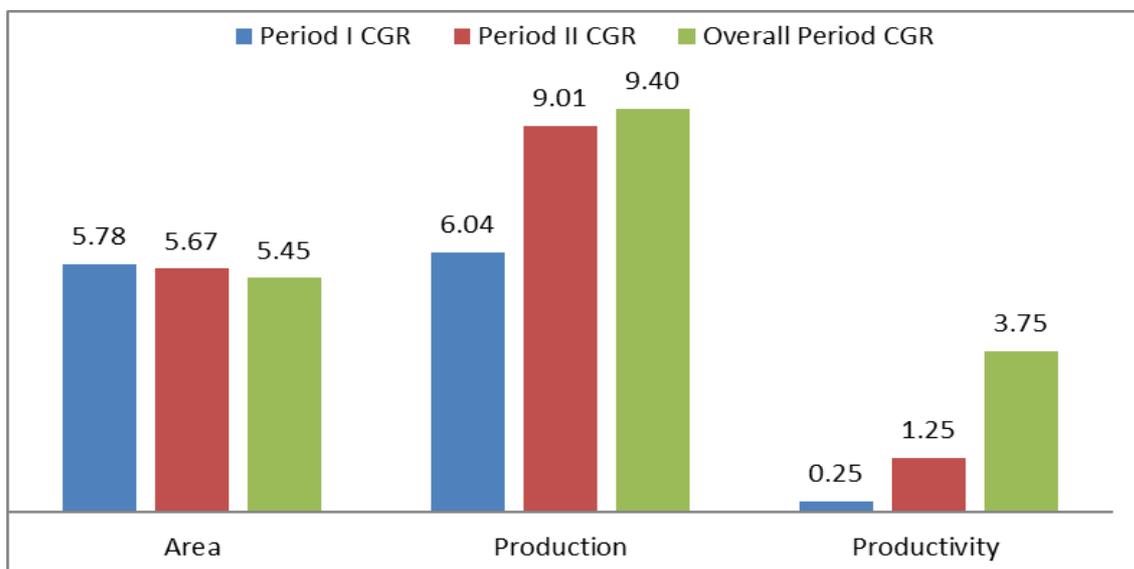


Fig 2: Compound Growth Rate (CGR) of area, production, productivity Basmati Rice in India

Compound Growth Rate (CGR) of export quantity, export value and unit value of basmati export

The CGR of export quantity of basmati rice in the Period - I was 8.72 per cent and in Period - II area was 13.64 per cent. The per cent CGR of export quantity of basmati rice in the overall Period was 11.03 per cent. . All the above CGR are significant at 5% level of significance. The per cent CGR export value of basmati rice in the Period - I was 16.96 per cent and in Period - II area was 22.63 per cent. The per cent CGR of export value of basmati rice in the overall Period was 17.65 per cent. The CGR percent for export value of basmati rice is significant at 5% level of significance. The per cent CGR of unit export value of basmati rice in the Period - I was

7.58 per cent and in Period - II area was 7.91 per cent. The per cent CGR of unit export value of basmati rice in the overall Period was 5.96 per cent. The unit export value for all the Period significant at 5% level of significance.

Table 4: CGR of export quantity, export value and unit value Basmati Rice in India

Periods	Export Quantity (in per cent)	Export Value (in per cent)	Unit Export Value (in per cent)
Period - I	8.72	16.96	7.58
Period - II	13.64	22.63	7.91
Overall Period	11.03	17.65	5.96

All CGR values are Significant at 5% level of Significance

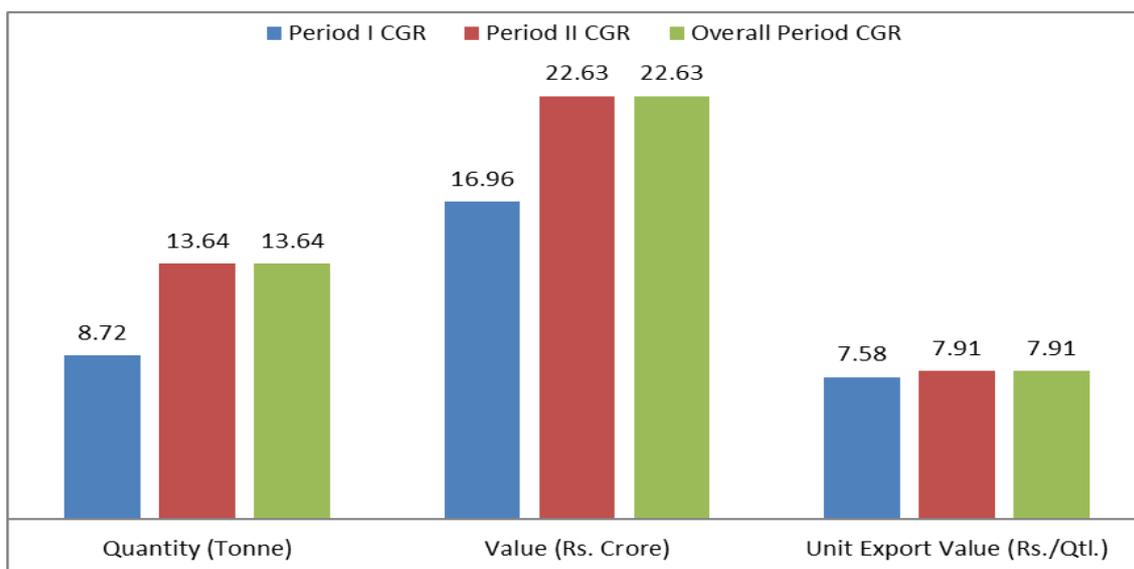


Fig 3: CGR of export quantity, export value and unit value Basmati Rice in India

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