

An analysis on the export of banana from India

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ABSTRACT

At present, Tamilnadu is the leading state in India in the production of banana followed by Maharashtra, Gujrat, A.P., Karnataka and Bihar. In spite of this India's share in the Global Market is less than one per cent. The total export of banana contributed 20.84 per cent in quantity of the total fruits exported from India during 2009-10. Average Export share of Banana to total fruits exports was 7.89 per cent. The share of banana to the total production of banana ranged between 0.002 per cent to 0.205 per cent during the study period. Average export share of banana to total banana production in India was 0.056 per cent. Export of banana from India to both volume and value significantly got increased and decreased in the study period. Compare to the growth rate of banana and its relative share to total fruits exported from India, CAGR and C.V. was positive in quantity and value of exports of banana. Banana export in volume, Banana export in value, total fruit export in volume and total banana production in term of CAGR was 27.81 per cent, 40.97 per cent, 10.76 per cent, and 7.67 per cent, respectively and co-efficient of variation was 116.40 per cent, 148.03 per cent, 114.82 per cent and 31.85 per cent, respectively.

Key words : Exports, Growth rate, Production, Share volume and value, Banana

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India can be safely referred to as the fruit basket of the world being the second largest producer of fruits next to Brazil. India is the largest producer of banana in the world. Fruits can earn about 20-30 times higher foreign exchange per unit area than cereals. Fruits constitute a crucial nutrient source in human diet. Banana is an important fruit crop grown

in the country and popularly know as common man's fruit. The economic importance of banana has been increasing on account of increase in domestic as well as international demand for it.

India produces about 24 per cent of the total world banana production. In spite of this India's share in the global market is less than one per cent, indicating vast potential for India to emerge as a major exporter of banana recognizing an importance of banana fruit in foreign exchange earnings and liberalization policy adopted by our country.

At present, Tamil Nadu is the leading state in India in the production of banana followed by Maharashtra, Gujarat, Andhra Pradesh, Karnataka and Bihar. India could not top in the list and there seems to be several reasons for India's unsatisfactory and poor performance in banana exports. The present paper attempts to analyze the value-wise and volume-wise of banana exported from India.

Objectives of study are as follows : to highlight the trend in exports of banana from India both in terms of value and banana production in India, to highlight the trend in exports of total fruit from India in terms of value and banana production

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in India and to highlight the constraints in banana exports of India

METHODOLOGY

For the present study, secondary data were collected regarding total fruits exports especially for banana export from publication of central and state governments especially, National Horticultural Board, APEDA, DIGCS for the time series data on quantity (volume) exported and value realized during the study period (1991-92 to 2009-10)

Analysis of data:

The data were analyzed by using simple statistical tools such as means, percentage, ratio etc. in order to assess the performance of the total fruit exports, banana production and exports, from the time series data with trend values to estimate the projections for export of banana during the year 2014-2015.

With a view to examine the performance in export of banana from India, linear and compound growth rates for study periods (1991-92 to 2009-10) were computed by fitting the following types of linear and CAGR equations to time series data :

Fitting of trends:

$$CAGR = \left[\frac{\text{Ending value}}{\text{Beginning value}} \right]^{\frac{1}{\text{No of year}}} - 1 \quad (1)$$

Linear growth trend equation = $y^{\wedge} = a + bx$ and $x^{\wedge} = a+by$

$$\text{Linear average growth rate (LGR)} = \frac{b}{y} \times 100$$

\bar{y} = mean of y

$$LGR = \frac{b}{x} = x \times 100 \quad (2)$$

\bar{x} = mean of x

The significance of linear and compound growth rates were tested with appropriate tests.

Co-efficient of variation:

To Judge the stability in export of banana in volume and value, co-efficient of variation (CV) was computed by using the following formula:

$$CV = \frac{SD}{\text{mean}} \times 100 \quad (3)$$

Co-efficient of determination:

The co-efficient of determination is to measure the variation dependent variable x and y which are explained by regression line:

$$R^2 = 1 - \frac{S^2_{y.x}}{S^2_y} \quad (4)$$

$$R^2 = 1 - \frac{S^2_{y.y}}{S^2_x} \quad (5)$$

Co-efficient of regression:

The co-efficient of regression is the line of series y on x and x on y .

$$b_{yx} = \frac{\Sigma dx dy \ x \ n - (\Sigma dx \ x \ \Sigma dy)}{\Sigma dx^2 \ x \ n - (\Sigma dx)^2} \quad (6)$$

$$b_{yx} = \frac{\Sigma dx dy \ x \ n - (\Sigma dx \ x \ \Sigma dy)}{\Sigma dy^2 \ x \ n - (\Sigma dy)^2} \quad (7)$$

Co-efficient of correlation:

$$Y = \frac{\Sigma dx dy \ x \ n - (\Sigma dx \ x \ \Sigma dy)}{\sqrt{\Sigma dx^2 \ x \ n - (\Sigma dx)^2} \cdot \sqrt{\Sigma dy^2 \ x \ n - (\Sigma dy)^2}} \quad (8)$$

ANALYSIS AND DISCUSSION

The findings of the present study as well as relevant discussion have been summarized under following heads:

Export of banana and export of total fruits:

The volume of export of total fruit from India and percentage share of banana from 1991-92 to 2009-10 are

Table 1 : Share of banana and total fruits exports in India (volume)			
Years	Export of total fruits (tonnes)	Export of banana (tonnes)	Export share of banana (%)
1991-92	41,446	656	1.59
1992-93	39,757	1353	3.40
1993-94	39,780	1086	2.73
1994-95	45,962	966	2.10
1995-96	58,094	1744	3.00
1996-97	1,66,172	303	0.18
1997-98	64,603	7017	10.86
1998-99	45,524	8111	17.82
1999-2000	73,070	6290	8.61
2000-01	81,059	8629	10.65
2001-02	1,10,157	8099	7.35
2002-03	90,322	8655	9.58
2003-04	1,49,293	10876	7.29
2004-05	1,36,958	12817	9.36
2005-06	1,73,817	14411	8.29
2006-07	1,77,631	11475	6.46
2007-08	2,07,699	16662.6	8.02
2008-09	2,56,770	30401.5	11.84
2009-10	2,60,678	54319.2	20.84
Average	11678.53	10730.07	7.89

Source : National Horticultural Board Database – 2010

presented in Table 1. The percentage share of banana to the total fruit exported ranged between 0.18 per cent and 20.84 per cent during the period under study. On an average, it was 7.89 per cent. The share of banana to the total fruits exported from India stood at 0.18 per cent in 1996-97 which increased to 10.86 per cent in 1997-98. Export of banana that year was remarkable to 7017 tonnes.

The percentage share of banana export which started increasing in 1997-98 to 1998-99 but after years fluctuation in share of banana export to the total fruit export. In 2008-09 again increase percentage share of banana export from India stood at 11.84 per cent to 20.84 per cent in 2009-2010.

Share volume of banana export in India's to banana production:

The total production of banana from India and the per cent share of banana export for the period from 1991-92 to 2009-10 are presented in Table 2. It was observed that the share of banana to the total production of banana ranged between 0.002 per cent to 0.205 per cent during the period under review. On an average, it stood at 0.056 per cent during the period under study. The percentage share came down to 0.002 per cent in 1996-97 from 0.009 in 1991-92. It was also found that the share of banana to the total volume of

Years	Production of banana ('000 MT)	Export of banana (MT)	Export share of banana on banana production in %
1991-92	7000.0	656	0.009
1992-93	10,460.0	1353	0.013
1993-94	11,900.8	1086	0.009
1994-95	13,168.1	966	0.007
1995-96	13,095.1	1744	0.013
1996-97	12,439.6	303	0.002
1997-98	13,339.5	7017	0.052
1998-99	15,072.7	8111	0.054
1999-2000	16,814	6290	0.037
2000-01	14,137	8629	0.061
2001-02	14,210	8099	0.057
2002-03	13,304.4	8655	0.065
2003-04	13,856.6	10,876	0.078
2004-05	16,744.5	12,817	0.077
2005-06	18,887.8	14,411	0.076
2006-07	20,998	11,475	0.055
2007-08	23,823	16,662.6	0.069
2008-09	26,217	30,401.5	0.116
2009-10	26,469.5	54,319.2	0.205
Average	15891.45	10730.07	0.056

Source : National Horticultural Board database – 2010.

production of banana increased from 0.052 per cent in 1997-98 to 0.205 per cent in 2009-10. This might have been due to a substantial increase in volume of banana exports and increase in the production of banana. The total production of banana from India in 2004-05 about 16,744,500 MT and export of banana nearly double in 2007-08 to 2008-09 was 166,62,600 MT to 30,4,01,500 MT therefore, it is concluded that over all the per cent share of volume of banana export revealed an increasing trend during the period under study.

Volume of banana exported from India:

The volume of banana exported from India from 1991-92 to 2009-10. The absolute as well as percentage increase or decrease over the previous years and trend value are presented in Table 3.

It is observed from Table 3 that export of banana from India, significantly got increased from 656 tonnes in 1991-92 to 1353 tonnes in 1992-93, then decline in India's banana exports. From 1993-94 onwards banana exports, were further reduced from 1086 tonnes to 966 tonnes in 1994-95. The severe

Years	Export quantity (t)	Increase or decrease	Percentage of increase/decrease	Trend value
1991-92	656	-	-	-5301.18
1992-93	1353	697	106.25	-3520.17
1993-94	1086	-267	-19.73	-1738.89
1994-95	966	-120	-11.05	42.39
1995-96	1744	778	80.54	1823.67
1996-97	303	-1441	-82.63	3604
1997-98	7017	6714	2215.84	5386.23
1998-99	8111	1094	15.59	7167.51
1999-2000	6290	-1821	-22.45	8948.79
2000-01	8629	2339	37.19	10730.07
2001-02	8099	-530	-6.14	12511.35
2002-03	8655	556	6.86	14292.63
2003-04	10876	2221	25.66	16073.91
2004-05	12817	1941	17.85	17855.19
2005-06	14411	1594	12.44	19636.47
2006-07	11475	-2936	-20.37	21417.75
2007-08	16662.6	5187.6	45.21	23199.03
2008-09	30401.5	13738.9	82.45	24980.31
2009-10	54319.2	23917.7	78.67	26761.59
Growth over the period	53663.2	-	-	-
Growth over 10 year periods	48029.2	-	-	-
Growth rate over 10 years	76.36%	-	-	-

Source : National Horticultural Board Database- 2010.

competition from the international market was the major reason for such a drastic reduction in banana export during the over all period of study. There was demand for good quality of banana but Indian banana quality is poor. Various remedies are taken to improve the banana exports from various agencies then increased from 8655 tonnes in 2002-03 to 14,411 tonnes in 2005-06. In 2006-07 banana exports was 20 per cent decreased to again poor quality and post-harvesting activities. Banana exports increased from 16662.6 tonnes in 2007-08 to 30401.5 tonnes in 2008-09 consisting 82.45 per cent increase in the growth rate over the previous year and 78.67 per cent growth rate over previous year in 2009-10. It is also revealed that the trend values for banana export increased from -5301.18 tonnes in 1991-92 to 26761.59 tonnes in 2009-10, showing an

increasing trend over a period of 19 years growth over the period was 53663.2 tonnes. Growth over 10 year period was 48029.2 tonnes and growth rate over 10 year period was 76.36 per cent of banana export.

India's export earnings from banana:

The value of banana exported from India during 1991-92 to 2009-10, the percentage of increase or decrease over the previous year and the trend values are shown in Table 4.

It was observed from Table 4 that the value of banana exported from India was maximum of Rs. 13025.47 lakhs in 2009.10. The value increased from Rs. 1171.80 lakhs in 2003.04 to 13025.47 lakhs in 2009-10, registering annual growth rate of 14.58 per cent. In 2005-06, the increase of export registered a

Years	Exports of banana (Rs in Lakhs)	Increase/ Decrease	Percentage of increase/ decrease	Trend value
1991-92	26.935	-	-	-1229.91
1992-93	106.650	79.715	295.95	-875.38
1993-94	147.310	40.660	38.12	-521.92
1994-95	89.560	-57.750	-39.20	-167.92
1995-96	222.090	132.530	147.98	186.08
1996-97	41.906	-180.184	-81.13	540.07
1997-98	1267.820	1225.910	2925.38	894.07
1998-99	1689.400	421.500	33.25	1248.07
1999-00	1280.809	-408.590	-24.19	1602.06
2000-01	1800.304	519.495	40.56	1956.06
2001-02	1583.940	-216.364	-12.02	2310.06
2002-03	1272.300	-311.640	-19.67	2664.05
2003-04	1171.800	-100.500	-7.90	3018.05
2004-05	1342.700	170.900	14.58	3372.05
2005-06	2336.100	993.400	73.99	3726.04
2006-07	1606.700	-729.400	-31.22	4080.04
2007-08	2607.940	1001.240	62.32	4434.04
2008-09	5545.440	2937.500	112.64	4788.04
2009-10	13025.470	7480.030	134.89	5142.03
Growth over the period	12998.07	-	-	-
Growth over 10 year periods	11744.66	-	-	-
Growth rate over 10 year periods	91.47%	-	-	-

Source : National Horticultural Board Database 2010.

Particulars	LGR	Regression co-efficient	R ²	CAGR % (Per annum)	C.V. (%)
Banana export (Y) (in tonnes)	0.039	4.23 = r3.10	0.979	27.81	116.40
Banana export (x) (in Rs.)	0.001	0.23	0.150	40.97	148.03
Total fruit export (in tonnes)	-	-	-	10.76	114.82
Total banana production (India) (in'000MT)	-	-	-	7.67	31.85

Source : computed from Table 1, 2, 3 and 4

CAGR : Compound annual growth rate bYX,bXY : Regression line of Y on X and
 R² : Co-efficient of variation Regression line of X on Y
 r : Co-efficient of correlation LGR : Linear growth rate

record annual growth rate of 73.99 per cent over the previous year. This substantial increase in the growth rate was mainly due to the price hike of banana and good quality exports.

It was also observed that growth over the period was Rs. 12998.07 lakh, growth over 10 year period was Rs. 11744.66 lakh and growth rate over 10 year period was 91.71 per cent.

Growth rate of banana export:

In order to compare the growth rate of banana and its relative share in total fruits exported from India, compound annual growth rate (CAGR) and co-efficient of variation in terms of volume and value of banana exports are presented in Table 5.

It was observed from Table 5 that the trend co-efficient was positive in quantity and value of exports, from India. Total exports of fruits and production of banana was positive.

The analysis revealed that quantity of banana export increased at the rate of 27.81 per cent per annum and value of banana export also showed a positive growth rate of 40.97 per cent per annum during the study period. It is inferred from the analysis that value of banana export showed an abnormal variation of 148.03 per cent due to wide fluctuations in banana price level. Even though the total banana production in India showed a growth rate of 7.67 per cent per annum, Total fruits export showed positive growth rate of 10.76 per cent per annum and the estimate of the projection for export of banana during 2014-15 will be 35667.99 tonnes. Phuke *et al.* (2004) explored the export potential of banana in India. Karthikeyan

and Mahesh (2010) made an analysis of export of black pepper from India. Similarly, Nagraja and Basavaia (2011) also made some contributions on coconut production and marketing in India.

Conclusion:

Both in terms of volume and value of banana exports, India occupies an important place. But from the point of view export earnings, the position is not satisfactory. The reason attributed for the lack of post harvesting facilities and poor qualities of banana competition of the major banana exporting countries in the international markets. The central Government and state Governments should take necessary steps to increase the banana exports from India by improving the quality of banana with international standards, and also by conducting the export campaign.

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