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SD Wankhede

Department of Agricultural
Economics and Statistics,
College of Agriculture, Nagpur,
Maharashtra, India
Dr. Panjabrao Deshmukh Krishi
Vidyapeeth, Akola,
Maharashtra, India

YR Nikam

Department of Agricultural
Economics and Statistics,
College of Agriculture, Nagpur,
Maharashtra, India
Dr. Panjabrao Deshmukh Krishi
Vidyapeeth, Akola Maharashtra,
India

BN Ganvir

Department of Agricultural
Economics and Statistics,
College of Agriculture, Nagpur,
Maharashtra, India
Dr. Panjabrao Deshmukh Krishi
Vidyapeeth, Akola,
Maharashtra, India

PS Matre

Department of Extension
Education, College of
Agriculture, Kolhapur, MPKV,
Rahuri, Maharashtra, India

Correspondence**SD Wankhede**

Department of Agricultural
Economics and Statistics,
College of Agriculture, Nagpur,
Maharashtra, India
Dr. Panjabrao Deshmukh Krishi
Vidyapeeth, Akola,
Maharashtra, India

Export performance of cashew-nut in India

SD Wankhede, YR Nikam, BN Ganvir and PS Matre

Abstract

Cashew is one of the important plantation crop. It is a crop of tropical ever green region and requires warm humid climate. Its origin is Brazil. The objective of the study was to analyse the export performance of Cashew in India. The secondary time series data for the last 20 years i.e.1998 to 2017 regarding production and export were collected from various issues of Cashew Export Promotion Council of India, Agri. India statistics, and FAO STAT. The entire 20 years was equally divided in two period i.e., period I (1998 to 2007) and period II (2008 to 2017). The collected data were analysed with the help of statistical tools like CGR. The study indicate that the compound growth rate of export quantity of cashew was highest in period I (35.36% per annum) and statistically significant. Similar result was found in export value of cashew i.e., period I (11.53 % per annum). Also the CGR was found highest in Period II (25.18 % per annum) for value in export of cashew and unit value of cashew i.e. period II (21.46% per annum).

Keywords: Cashew, export, India, CGR (compound growth rate)

Introduction

Agricultural exports potential is quite high in India. Agricultural exports are contributing around 13.20 percent to India's total export earnings in 2017 and also play a significant role in employment generation, particularly in the rural sector. The low import to export ratio enhances the significance of agricultural exports. In India, after achieving self – sufficiency in food grain production and globalization of agricultural trade, production of export-oriented crops is given priority. Presently India is exporting about 7500 commodities to 190 countries and importing almost 6000 commodities from 140 countries of the world. India is determined to raise its trade share in world trade to one percent.

One of such trade related important product which is been exporting from India since very early is cashew (*Anacardium occidentale*). The species is originally native to north-eastern Brazil. Portuguese colonists in Brazil began exporting cashew nuts as early as the 1550s. Major production of cashews occurs in Vietnam, Nigeria, India, and Ivory Coast. The cashew tree (*Anacardium occidentale*) is a tropical evergreen tree that produces the cashew seed and the cashew apple. It can grow as high as 14 m (46ft), but the dwarf cashew, growing up to 6 m (20ft), has proved more profitable, with earlier maturity and higher yields. The cashew nut, often simply called a cashew, is widely consumed. The fruit of cashew tree is an accessory fruit also known as pseudo carp or false fruit. The true fruit of cashew tree is a kidney or boxing glow shaped drupe that grows at the end of cashew apple. Raw nut, cashew kernels and cashew nut shell liquid (CNSL) are the three main cashew products while the fourth product, the cashew apple is generally processed and consumed locally. The skin of the nut contains high tannin, which can be recovered and used in the tanning of hides. Cashew kernel is known for its delicious, pleasant taste and for balanced nutritive profile. 100gms of cashew kernels of contributes about 600 calories. The nutritive values present in cashew kernels are protein, fats, carbohydrates and have all the fat soluble vitamins (A, D, E and K).

Materials and Methods**Estimation of Growth Rates**

The objective of the present study is to estimate the growth in production export and import of cashew nut in India.

The growth rates in production export and import of cashew nut in India was studied by using compound growth rates.

The growth rate was estimated using following model,

$$Y = a.bt \dots\dots\dots (1)$$

Where,

Y = Depended variable for which growth rate is to be estimated

(Quantity exported / export value / unit value)

a = Intercept

b = Regression Coefficient

t = Time Variable

This equation was estimated after transforming (1) as follows,

$$\text{Log } y = \text{log } a + t \text{ Log } b \dots\dots\dots (2)$$

Then the percent compound growth rate (g) was computed using the relationship.

$$\text{CGR (g)} = (\text{antilog } b - 1) \times 100 \dots\dots\dots (3)$$

The significance of the regression coefficient was tested using the student's 't' test.

In order to study the instability in the export of Cashew, Coefficient of variation, Cuddy Della Valle instability index was used.

Coefficient of variation (CV)

$$\text{Coefficient of variation (CV)} = \frac{\sigma}{\bar{x}} \times 100 \quad -$$

Where,

σ = Standard deviation

$$S = \sqrt{\frac{\sum (X - \bar{X})^2}{n}}$$

\bar{X} = Arithmetic mean

X = Variable

n = Number of observation

Cuddy- Della Valle's Instability Indices (CDVI)

It was used to measure instability in export of Cashew which is close to approximation of the average year to year percent variation adjusted for trend. The algebraic form of it was;

$$\text{Instability Index} = \text{CV} \sqrt{(1 - R^2)}$$

Where,

CV = Simple Estimates of coefficient of variation in per cent and

R^2 =Coefficient of determination from a time trend regression adjusted by the number of degree of freedom.

Result and Discussion

India's share in world export

India's share in world export at different points of times was worked out and presented in Table 1.

It could be seen from the Table 1 that India's export during 1997-98 was Rs. 130100 which has increases to Rs. 1839278 during 2016-17. In terms share in world export India's export was 0.35 per cent in 1997-98 which has risen to 1.47 per cent in 2016-17.

Table 1: India's share in world export Value (Rs. crores)

Sr. No.	Year	World Export	India's Export	India's share in World Export (%)
1	1997-98	36828228	130100	0.35
2	2002-03	50640391	255137	0.50
3	2007-08	127413689	655863	0.51
4	2012-13	126763160	1634318	1.29
5	2016-17	125106556	1839278	1.47

In overall India's share in world export was near about 1 per cent and in last decade it was more than 1 per cent. (Source: www.fao.org)

Share of agricultural export to total export of India

The total exports of agriculture and allied products and also a share of agricultural export to total export of the country is presented in the Table 2.

Table 2 revealed that, India's total export in 1997-98 was Rs. 130100 crores which has increased to Rs. 1839278 crores in 2016-17 by 14.14 times. The agricultural export in 1997-98 was Rs. 25400 crores which has increased to Rs. 223814 crores in 2016-17 by 8.81 times. However, per cent share of agricultural export to the total export has decreased from 19.52 per cent in 1997-98 to 12.68 per cent in 2016-17. This decline in the share was due to faster growth of other sectors like service, Manufacturing etc.

Table 2: India's share of agricultural export to total export Value (Rs. crores)

Sr. No.	Year	Total Export	Agricultural Export	Percent share of agriculture export to total export (%)
1	1997-98	130100	25400	19.52
2	2002-03	255137	36253	14.20
3	2007-08	655863	77783	11.85
4	2012-13	1634318	187609	11.47
5	2016-17	1839278	223814	12.68

(Source: www.fao.org)

Therefore, it is forgoing results depicted that, the agricultural sector has been playing a key role in the composition of Indian exports. Thus the table highlights the surprising fact that the share of Indian agricultural export has been slowly declining in the recent years. In the era of globalization, the agricultural exports from India have been facing many internal and external challenges. Its share has declined from

19.52 per cent in 1997-98 to 11.85 per cent in 2007-08 and stagnant further and increased gradually to 12.68 per cent in 2016-17.

India's share in world cashew export

The world cashew export and India's cashew export and also a share of India's Cashew export, world cashew export were presented in the Table 3.

Table 3: India's share in world cashew export Quantity (tonnes)

Sr. No.	Year	World Cashew Export	India Cashew Export	Percent share of India's Cashew export to world Cashew export (%)
1	1998	243182	17593	7.23
2	2003	412682	104137	25.23
3	2008	680934	114345	16.79
4	2013	924547	100105	10.82
5	2017	997567	82302	8.25

(Source: www.fao.org)

It could be seen from the Table 3 that India's cashew export during 1998 was 17593 tonnes which decreases to 82302 tonnes during 2017. In terms share in India's cashew export to world cashew export was 7.23 per cent in 1998 was fall to 8.25 per cent in 2017.

Export of cashew

The details of quantity of cashew exported from India over the years are presented in Table 4.

Table 4 revealed that the quantity of cashew exported over the years has increased from 17593 tons in 1998 to 82302 tonnes in 2017. The increase in export was in tune with increase in production and decrease in import of raw cashew though India is the major producer and consumer of cashew. The export of cashew in proportion to production was just 2.5 per cent in the year 1998 which has increased to 7.90 per cent in the year 2017, still there is a potential to increase its export.

Table 4: Per cent share of cashew export to cashew production Quantity (tonnes)

Year	Production	Export	Per cent share of cashew export to cashew production (%)
1998	701000	17593	2.5
2003	770000	104137	13.52
2008	868000	114345	13.17
2013	991000	100105	10.10
2017	1041000	82302	7.90

(Source: www.fao.org)

Growth rates in production and export of cashew

The exponential growth function used for estimation of compound growth rates in production, export quantity, export value and export unit value of cashew.

The export performance of cashew from India with respect to production, export quantity, export value and export unit value was evaluated for the period I (1998-2007), period II (2008 to 2017) and overall period (1998 to 2017) and the results are presented in the Table 5.

The results revealed that there is the positive and significant growth rate of production and export value of cashew for period I, period II and overall period. There is negative and non-significant growth rate of export quantity and unit value. The tremendous growth in export value of cashew exported was mainly due to increased demand in the world market. Best quality and taste has made Indian cashew more acceptable in the international markets.

Table 5: Period-wise Compound growth rates of production, export quantity, export value and export unit value of Indian cashew (1998-2017)

	Production	Export Quantity	Export Value	Unit Value
Period I (1997-2007)				
CGR	5.889**	35.362*	11.535*	-5.191
SE	0.022	0.437	0.175	0.110
t value	10.046	2.731	2.447	-1.907
R ²	0.926	0.482	0.428	0.312
Period II (2008-2017)				
CGR	4.925**	-4.650	25.180**	21.463**
SE	0.014	0.135	0.144	0.100
t value	13.111	-1.384	6.142	7.611
R ²	0.977	0.193	0.825	0.878
Overall period (1998-2017)				
CGR	5.630**	7.299	16.197**	11.324**
SE	0.019	0.392	0.171	0.198
t value	32.160	2.012	9.804	6.041
R ²	0.982	0.183	0.842	0.669

Note: *- denote significance at 5% level **-denote significant at 1 % level.

Table 5 revealed that in period I, production, export quantity, export value realized through exports have growth rate 5.889 per cent per annum, 35.362 per cent per annum, 11.535 per cent per annum and the CGR in case of unit value was negative i.e. -5.191 per cent per annum. The CGR were found to be statistically significant at one per cent level of significance.

In the period II, the production, export value and unit value of export going significantly at the rate of 4.925 per cent per annum, 25.180 per cent per annum and 21.463 per cent per annum, respectively, while the CGR of export quantity of cashew-nut was negative -4.65 per cent per annum.

The overall 20 years growth rate of export value of cashew in India was highly significant at 16.19 per cent per annum and much higher than the growth rate of production, export

quantity and unit value of export of cashew and was at 5.63 per cent per annum and 11.324 per cent per annum, respectively and significant at one per cent level.

Degree Instability in production and export of Indian cashew: In order to study the variability in production, export

quantity, export value and unit value of cashew exports during the study period, Cuddy-Della instability index was worked out. The total period (1998 to 2017) was split into three periods viz; period I (1998 to 2007), period II (2008 to 2017) and over all period (1998 to 2017).

Table 6: Cuddy-Della instability index of production, export quantity, export value and unit value of exports of Indian cashew (1998 to 2017)

	Particular				
	Production	Per cent share of export to production	Export Quantity	Export Value	Export Unit Value
Period I (1998-2007)					
Mean	764.4	12.195	94249.4	2069.571	239.737
SD	59.85	3.60	30536.39	438.61	29.69
CV	7.830	29.600	32.399	21.19	12.387
Cuddy-Della Instability Index	2.087	22.137	18.70	16.30	10.060
Period II (2008-2017)					
Mean	971.8	11.152	107767.3	3972.70	412.483
SD	61.884	1.848	14911.95	1199.30	100.998
CV	6.368	24.485	13.83	30.188	24.48
Cuddy-Della Instability Index	1.221	11.457	12.585	12.127	16.93
Overall Period (1998-2017)					
Mean	868.1	11.6735	101008.4	3021.13	326.11
SD	121.781	2.841	24395	1313.61	114.46
CV	14.028	24.344	24.151	43.48	35.100
Cuddy-Della Instability Index	1.623	24.280	21.773	19.056	19.054

Note: SD- Standard Deviation and CV- Coefficient of Variation

Table 6 revealed that the production of cashew exported exhibited less variability with co-efficient of variation at 7.83 per cent and 6.36 per cent in period I and period II, while it was highest in overall period with co-efficient of variation at 14.02 per cent.

As regard the quantity of cashew the highest variation was observed 24.151 per cent in overall period with coefficient of variation at 32.40 per cent in period I and 13.83 per cent in period II.

Export earnings in terms of value showed higher instability in overall period with 43.48 per cent of coefficient of variation when compared to the period I and period II. However, the instability observed in unit value of cashew export was observed highest variation in overall period with coefficient variation at 35.10 per cent and 12.38 per cent and 24.48 per cent in period I and period II.

Conclusion

There is increase in agriculture exports but percentage share of agriculture export to total exports was decreasing due to increase in share of manufacturing sectors, service sectors etc. There is increase in quantity of India's cashew export during overall period and percentage share of worlds cashew export to India's cashew export was also increasing in whole period of study. The growth rate of cashew production in India was found to be positive and highly significant during the period I, period II and overall period of the study. The growth rate for export quantity, export value and unit value of cashew export was found positive and highly significant for period I, period II and overall period. The study of instability index observed that there was stability in the production, quantity exported, export value and unit value of export during period II compared to period I.

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9. P.G. Student, Department of Agricultural Economics and Statistics, College of Agriculture, Nagpur, Dr. PDKV, Akola.
10. P.G. Student, Department of Agricultural Economics and Statistics, Post Graduate Institute, Dr. PDKV, Akola.
11. Head of Department, Department of Agricultural Economics and Statistics, Post Graduate Institute, Dr. PDKV, Akola.
12. P.G. Student, Department of Extension Education, Rajarshee Chhatrapati Shahu Maharaj College of Agriculture, Kolhapur, MPKV, Rahuri.