



Export & Export Potential of Cashew Kernels to Belgium, Germany & Netherlands

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Abstract- India is one of the biggest producer, processor, exporter, and the second largest consumer of cashew kernels in the world. Cashew ranks second among agriculture and horticulture commodities exported from India. The country is earning nearly around Rs.25000 crores through the exports of cashew kernels annually. Over sixty five percent of cashew kernels of the world are accounted by India. Today India dominates world's cashew market, over 685,000 hectares are under cashew cultivation here. India meets around 2/3rd of the world's demand for cashew. USA is the largest buyer of Indian cashews. It was only developed in twentieth century. Indian cashews are consumed in over sixty countries all over the world major markets being the United States, New Zealand, European Union and Middle East countries. Vietnam is the largest producer of raw cashew followed by Brazil and India. India dominates and leads in cashew kernels export to European countries. The present study was taken to comprehend the trend of exports of Cashew Kernels from India to Belgium, Germany & to the Netherlands. Trend Analysis, RCA and Correlation was applied for analysis.

Key Words: Export, Cashew, India

I. INTRODUCTION

The **cashew tree** (*Anticardiumoccidental*) is a tropical evergreen tree that produces the cashew seed and the cashew fruit. It can grow as high as 14 m (45%6 ft.), but the dwarf cashew, growing up to 6 m (20 ft.), has proved more profitable, with earlier maturity and higher yields. The species is originally found in north-eastern Brazil. Portuguese colonists in Brazil began exporting cashew nuts since 1550s. Major production of cashews occurs in Vietnam, Nigeria, India, and Ivory Coast. The cashew nut, often simply called a cashew, is widely consumed. It is eaten on its own, used in recipes, or processed into cashew cheese or cashew butter. The shell of the cashew seed yields derivatives that can be used in many applications including lubricants, waterproofing, paints, and arms production, starting in World War II. Cashew was introduced in India by the Portuguese nearly five centuries ago. In India Goa was the first city to introduce Cashew and then it got spreaded to other provinces of the country. Initially it was found to be used in soil binding to check erosion. Commercial cultivation began in early 1960s and over the years cashew became commercial crop with high economic value and the status of export oriented commodity, earning considerable foreign exchange for the country.

Major cashew nut producing countries are Vietnam, Nigeria, India, Côte d'Ivoire and Benin. The West African cashews reach the European market through processors in Vietnam and India. The majority of the regional demand is generated by Netherlands, United Kingdom, France, Germany, Spain, and Italy. The Netherlands is the trading hub for cashew nut kernels in Europe and acts as the main point of entry into Europe for cashew nut kernels coming from Asia, Africa, and Brazil. Other important ports for the European cashew trade are Hamburg (Germany) and Felixstowe (United Kingdom). Other major European countries for cashew trade are Belgium, Sweden, Spain, and Greece.

Import of raw cashew nut:

The incorrect harvesting technique and aging of cashew tree adversely affect the domestic production. Now India's producing capacity is 7 lakhs tons while it's processing capacity is just double, i.e. 14 lakhs tons so it is dependent on import of raw cashew for more than half of requirement. Four tons of raw cashew is required to process and make one ton of cashew kernels. India mainly imports raw cashew from African countries such as Ivory Coast, Tanzania, Ghana, Nigeria and Mozambique. There is a rise in imports of raw nuts which had gone up by 24.26% since 2009-2010. India imported around 52,854 tonnes of raw nuts valued at Rs.3, 037.35 crores and import was found further rising.

Key markets and exports destination for India

- India accounts for about 65% of global cashew exports.
- Exports of cashew nut shell liquid/Cardanol from India stood at 11,422 MT, valued at Rs.44 Crores (US\$6.75 millions) during 2016-2017, while the exports of cashew kernels stood at Rs. 5, 168.78 crores (US\$ 793.91 millions).
- Exports earnings from cashew and allied products in financial year 2016-2017 stood at Rs.5077 crores (US\$ 780.41 millions)
- India exports cashew kernels to over 60 countries. Its major markets are USA, The Netherlands, Japan, Spain, France, Germany, The UK as well as Middle Eastern countries such as UAE and Saudi Arab.

Objectives of the research study

- 1. To study and analyse the exports of cashew kernels from India to Belgium, Germany & Netherlands.**
- 2. To analyse trend of the exports and assess the prospects of the cashew industry of India.**
- 3. To study revealed comparative advantage of Cashew Kernels of India with other major competitors.**
- 4. To study the relationship between total merchandise exports and Cashew Kernels exports to Belgium, Germany & the Netherlands.**
- 5. To identify problems faced by Indian cashew exporters and to give suggestions to overcome them.**

Rationale of the study

This research was mainly taken to analyse is India one of the leader in exporting finished cashew or Cashew Kernels, is it one of the main contributors in exports of Cashew? India has shown huge potential in European and North American market. It is the largest exporter of cashew kernels followed by Vietnam and Brazil. Another reason this research was conducted was to find out the revealed comparative advantage of cashew kernel exported from India and problems faced by the Cashew exporters and finding out solutions to overcome them as one of the fact of them is India is also the largest importer of raw cashew nut.

II. REVIEW OF LITERATURE

Omer Jan (2015) in his research study analysed the exports from 2000 to 2010 and potential growth exports of processed cashew and identified the problems faced by cashew industry of India.

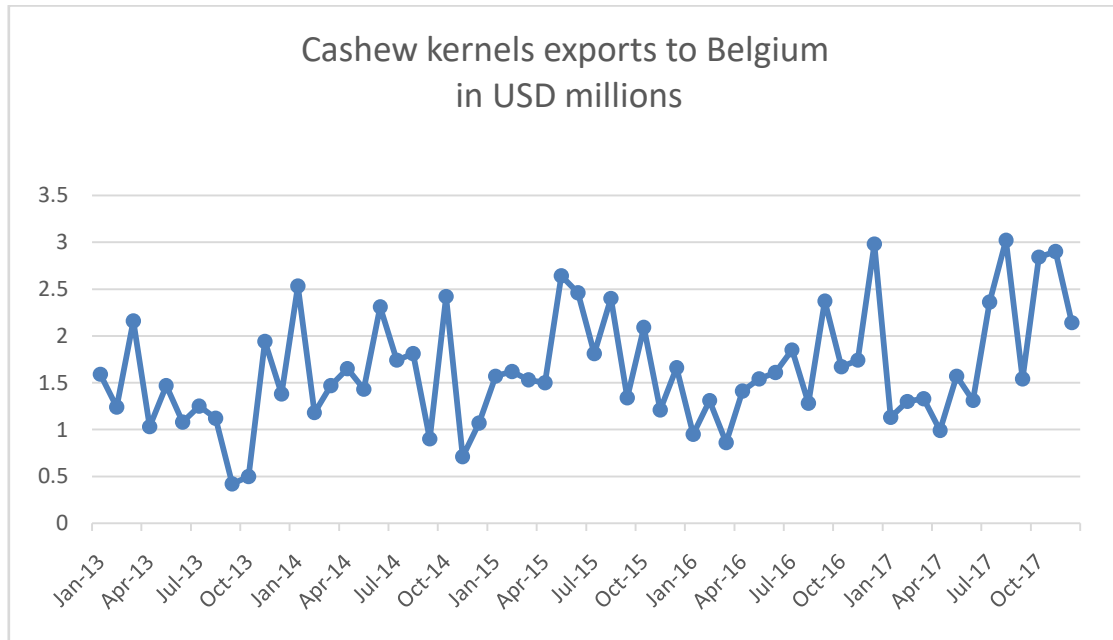
Pavaskar and Kshirsagar (2013) studied the Indian Cashew industry for its ability to meet the competitive challenges of the Vietnam cashew industry which is the world leader in export of shelled cashew kernels. They concluded that shift to production of spices and rice by Vietnam, higher per unit value realization for India and availability of plenty of coastal area in India are some of the factors which give India a competitive advantage over Vietnam.

Senthil and Mahesh (2013) observed the exports of cashew nut from India over a time span of over two decades from 1990-91 to 2009-10. In their study they found that while there was a gradual increase in the production but intermittent negative trends followed by rapid decline was evident due to disease spreaded by the cashew pest.

Yadav (2010) from the economics and research department of NABARD highlighted the improved technology adoption by cashew growers and identified the constraints like infrastructural deficiency and senile plantations, inadequate working capital and unorganized marketing of cashew nuts. This study recommended phased replanting of recommended varieties, high level of hygiene standards to be

maintained by the processors, etc. to achieve higher growth rate of production and processing in future, setting up of Cashew Export Zones, besides providing other facilities, would make contract farming arrangements feasible for cashew cultivation.

Time series Data for Exports of Cashew kernels to Belgium, Germany & The Netherlands

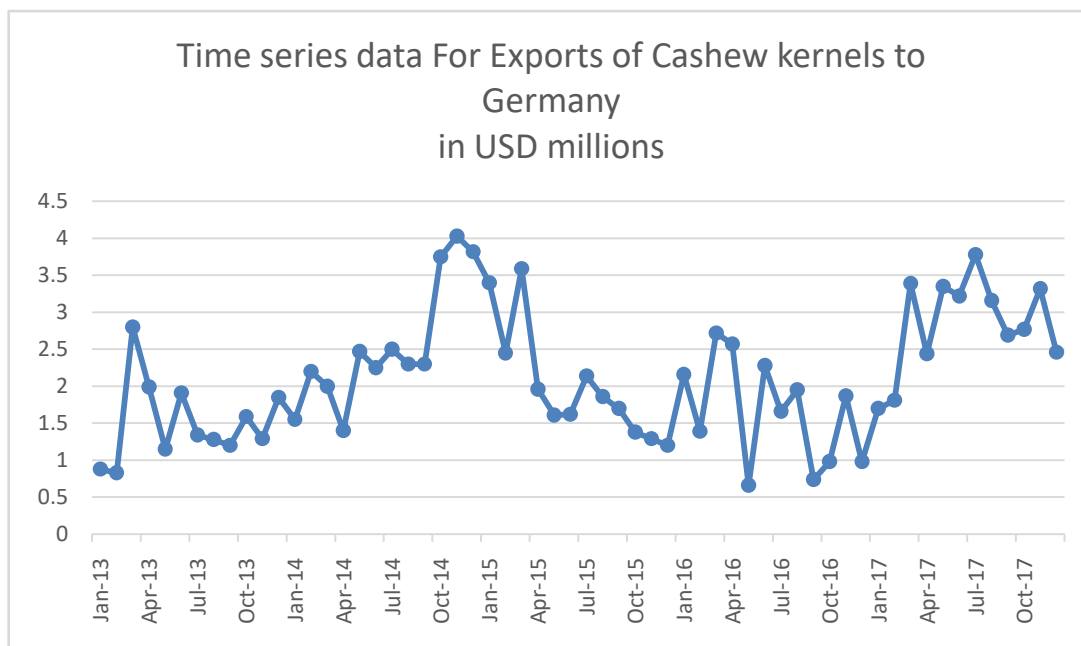


Graph 1

III. DISCUSSION

Export data for Belgium from Jan-2013 to Dec 2017

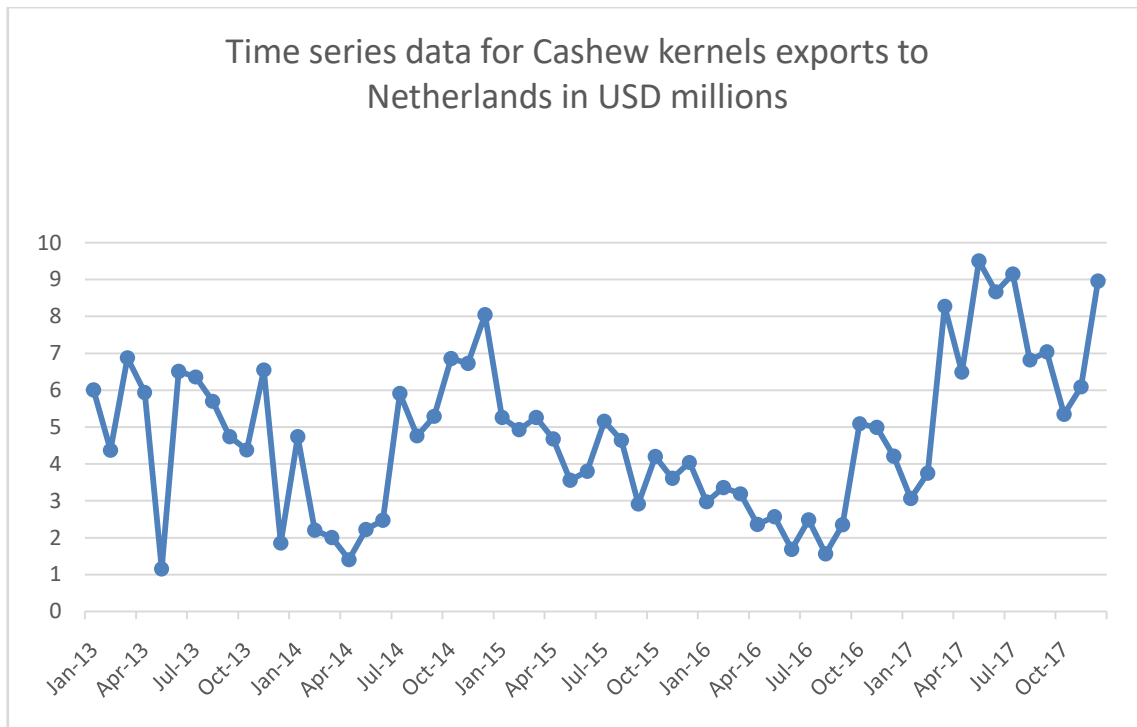
The above graph shows the data for cashew kernels exports made to Belgium from financial years 2013 to 2017, the data was represented on quarterly basis for each year. It can be seen that steady rise was observed in the first quarter of 2013 but started to fall through second quarter and eventually reached bottom point in the third quarter of 2013. This could be due to the unavailability of raw cashew as India is the biggest processor not the producer it still depends on imports of raw cashew from western African countries. This same sort of fall can also be observed in the third and fourth quarter of 2014 which indicated the seasonal unavailability of raw cashew or competitive global pricing. Again the same fall occurred in 2015 at the same time at a lesser intensity leading till the first quarter of 2016. A steady rise in the second quarter of 2016 was observed which could be due to the change in consumption pattern of cashew kernels but in rest of the years it showed fall which could be because duty was imposed on import of raw cashew and as a result the exports took a dip entering 2017 with an inconsistent growth throughout the first two quarters and then with the rise in the third quarter it reached the peak in the month of August exports valuing at \$3.02 million followed by the seasonal fall observed in the next years.



Graph 2

Export data for Germany from Jan-2013 to Dec 2017

The above graph shows the data for cashew kernels exports made to Germany from financial years 2013 to 2017 the data was represented on quarterly basis for each year. Germany is the second largest importer of cashew kernels in the European Union after The Netherlands. A spike can be seen in the month of March after a short dip in the first two months of 2013. A same pattern can be seen for seasonal dip in the third quarter which was also observed in Belgium's time series plot this could be due to the fact that both the countries are part European Union which is an economic union which holds same consumer behaviour or the consumption pattern and monetary, fiscal policies being same in a particular season or unavailability of raw or processed cashew in a season this same pattern can be observed in the following years. In 2016 duty was imposed on imports of raw cashew, impact of the same can be seen but the year 2017 was lucky enough to observe a gradual rise which could be the reaction to the fall in exports in the previous year but shows inconsistent growth in the last stages which also shows the seasonal fall as discussed earlier.



Graph 3

Export data for Netherlands from Jan-2013 to Dec 2017

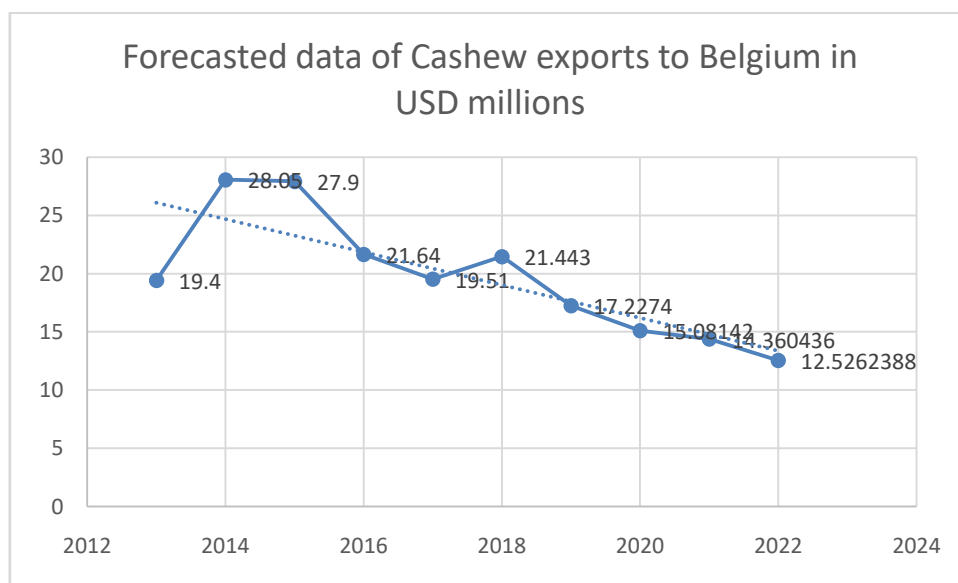
The above graph shows the data for cashew kernels exports made to The Netherlands from financial years 2013 to 2017 the data is represented on quarterly basis for each year. The Netherlands is the largest importer and exporter of cashew kernels in the European Union. The seasonality pattern strikes again and it shows a higher degree of impact in Netherlands time series plot as it is the largest importer of cashew kernels from India in European Union and the largest exporter of the same within European union and the consumption pattern around Germany, Belgium and The Netherlands eventually must be very similar due the fact they all share borders with each other and it is quite often observed that there is not very much difference in culture and standard of living in many European countries. The plunge in 2016 as stated above was due the fact that import duty was imposed on import of raw cashew in India and other reason could be the poor production of raw cashew in India or India was currently the largest consumer of cashews with consumption touching 3 lakh tonnes, two times the export. The consumption was growing at a rate of 5% annually.

Another fact could be higher pricing by India than its competition and clients going for the cheaper substitute provided by the competitor countries.

Trend and Forecast analysis for Exports of Cashew kernels to Belgium, Germany & The Netherlands

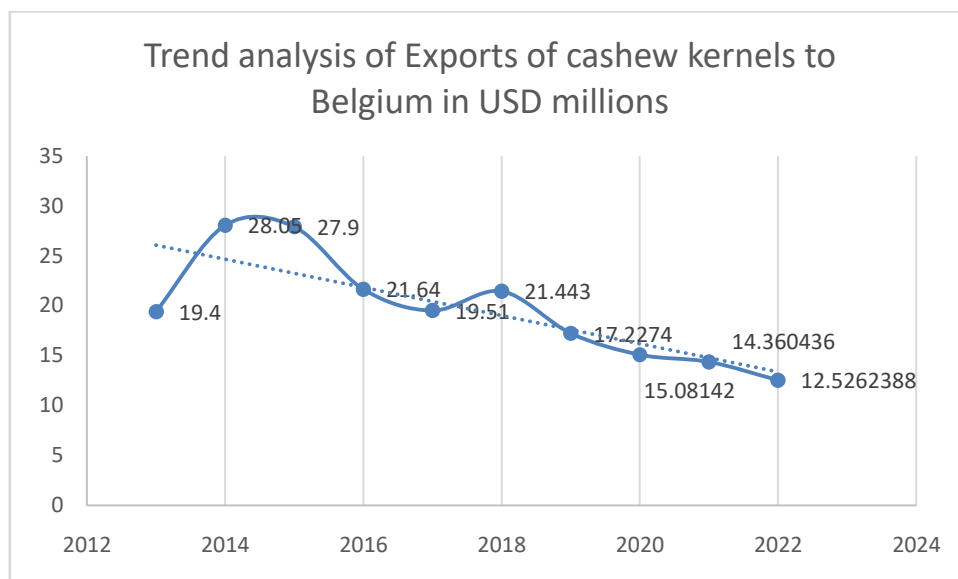
Year	Cashew exports to Belgium in USD millions
2013	19.4
2014	28.05
2015	27.9
2016	21.64
2017	19.51
2018	21.443
2019	17.2274
2020	15.08142
2021	14.360436
2022	12.5262388

Table 1(source: commerce.nic.in)



Graph 4

Forecasted Data for Cashew Kernels Exports to Belgium



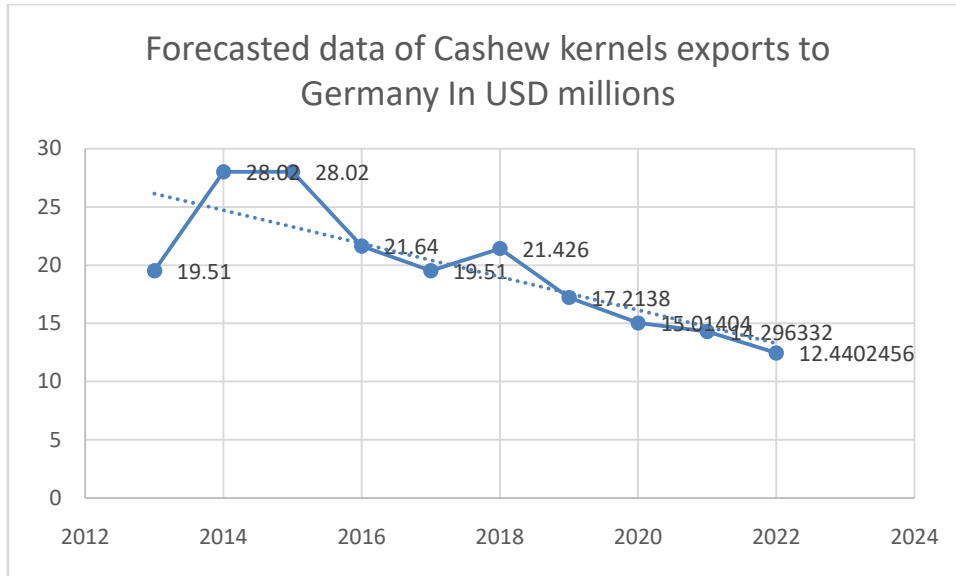
Graph 5

Trend data for Cashew Kernels' Exports to Belgium

Data for 10 years for exports of cashew kernels to Belgium in USD million was taken into account for forecasting and taking out trend data for next 5 financial years. The forecast and trend analysis showed similar results for cashew kernels exports to Belgium for the next five years. First year i.e. 2018 predicted a surge in cashew kernels' exports in comparison to 2017 but showed plunge in the exports of cashew kernels in later years from 2019 to 2022. This predicted fall could be because of high prices quoted by India in comparison to Vietnam.

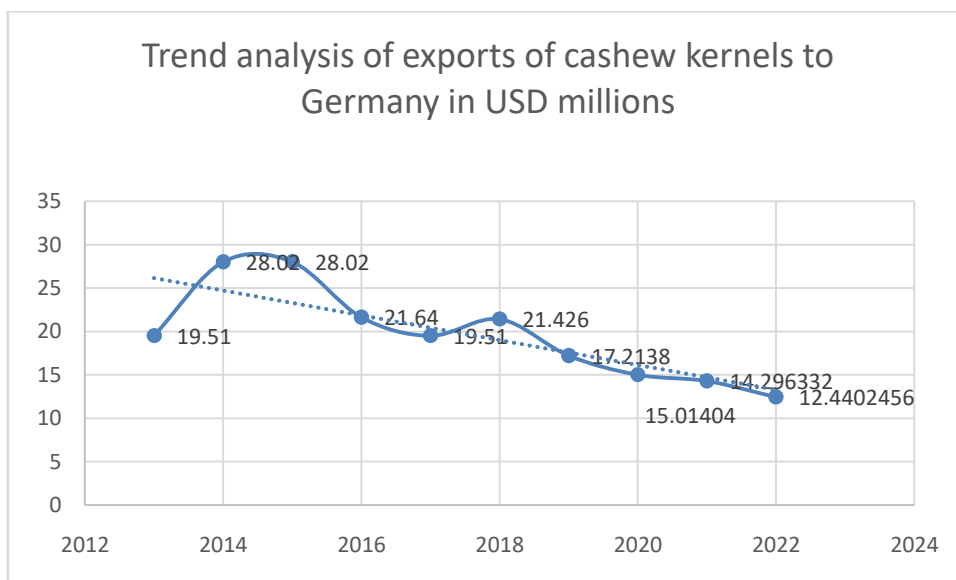
Year	Cashew exports to Germany in USD millions
2013	19.51
2014	28.02
2015	28.02
2016	21.64
2017	19.51
2018	21.426
2019	17.2138
2020	15.01404
2021	14.296332
2022	12.4402456

Table 2(source: commerece.nic.in)



Graph 6

Forecasted data for Cashew Kernels exports to Germany



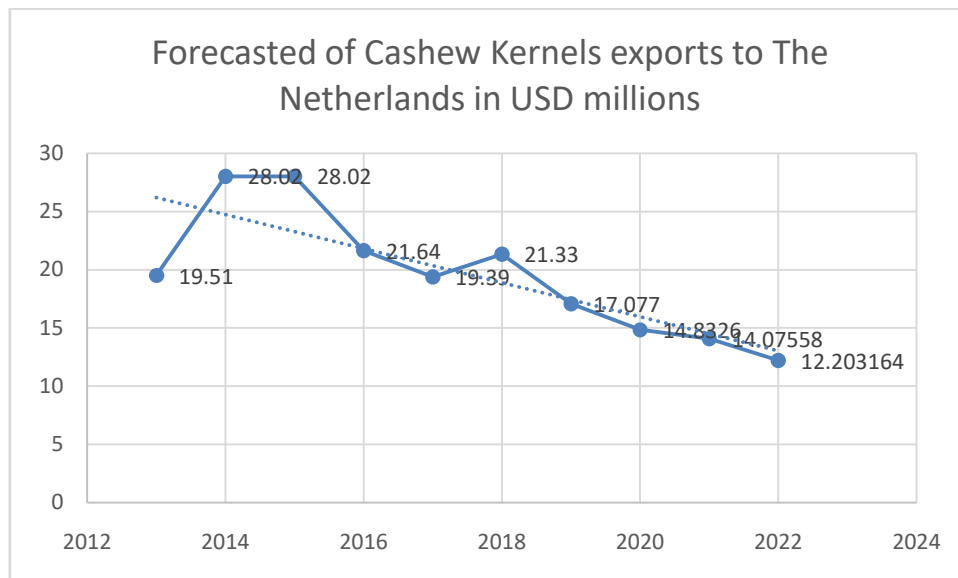
Graph 7

Trend data for Cashew Kernels exports to Germany

Data for 10 years for exports of cashew kernels to Germany in USD millions has been taken in for forecasting and taking out trend data for next 5 financial years. The forecast and trend analysis show similar results for cashew kernels exports to Germany for the next five years. The forecast and trend analysis shows similar results for cashew kernels exports to The Netherlands for the next five years. First year i.e. 2018 predicts a rise in cashew kernels exports in comparison to 2017 but shows falls in the exports of cashew kernels in later years ranging from 2019 to 2022. This fall could be because of the fact that India quotes higher prices than Vietnam or due to any other economical reason.

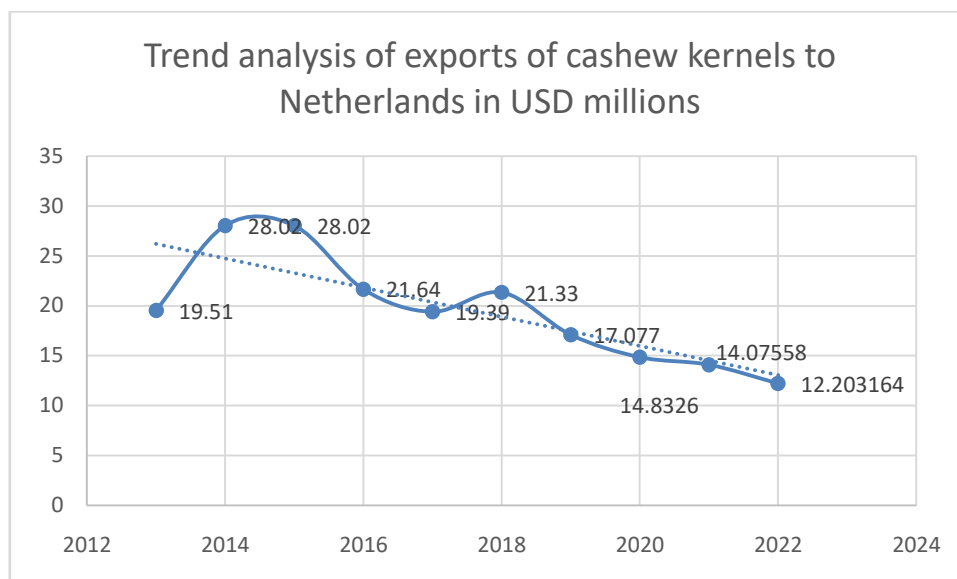
Year	Cashew exports to Netherlands in USD millions
2013	19.51
2014	28.02
2015	28.02
2016	21.64
2017	19.39
2018	21.33
2019	17.077
2020	14.8326
2021	14.07558
2022	12.203164

Table 3(source: commerece.nic.in)



Graph 8

Forecast data for Cashew Kernels exports to The Netherlands



Graph 9

Trend data for Cashew Kernels exports to The Netherlands

Data for 10 years for exports of cashew kernels to The Netherlands in USD millions has been taken into account for forecasting and taking out trend data for next 5 financial years. The forecast and trend analysis shows similar results for cashew kernels exports to The Netherlands for the next five years. The forecast and trend analysis shows similar results for cashew kernels exports to The Netherlands for the next five years. First year i.e. 2018 predicts a rise in cashew kernels exports in comparison to 2017 but shows falls in the exports of cashew kernels in later years ranging from 2019 to 2022. This fall could be because of the fact that India quotes higher prices than Vietnam or due to any other economical reason.

Revealed Comparative Advantage

A comparative analysis on the competitiveness of all major cashew exporting countries are undertaken on the basis of the revealed Comparative Advantage index (RCA), which is calculated as

$$RCA = (X_{it}/X_{wt}) / (X_i/X_w)$$

Wherein

X_{it} = ith country's export of Cashew

X_{wt} = world export of Cashew

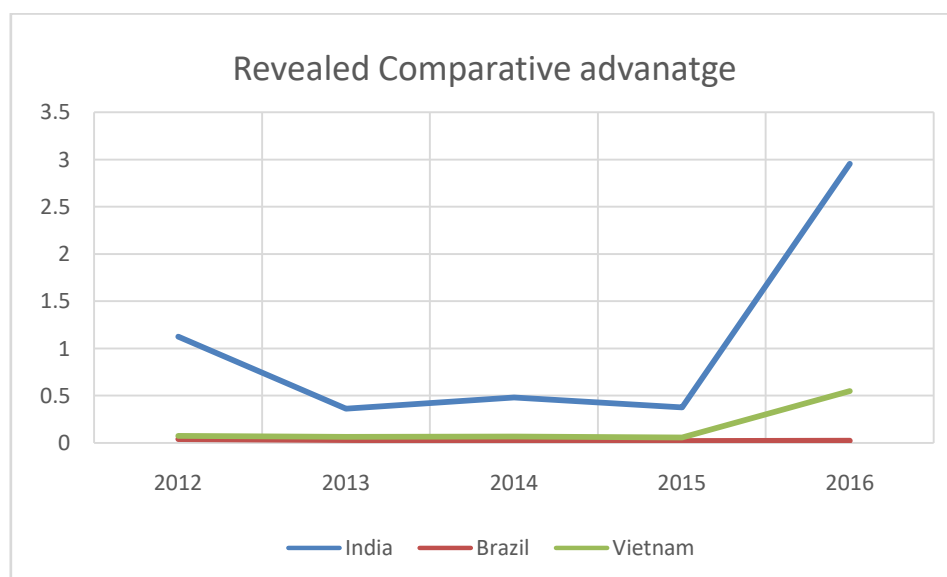
X_i = total merchandise export of country i

X_w = total world merchandise export

YEAR	India	Brazil	Vietnam
2012	1.1253E	0.0406E	0.0773E
2013	0.3624E	0.0308E	0.0674E
2014	0.4804E	0.0264E	0.0692E

2015	0.3772E	0.0229E	0.0597E
2016	2.9565E	0.0249E	0.5483E

Table 4(RCA analysis)



Graph 10

The data represented above shows the revealed comparative advantage indices measuring India's competitive advantage in cashew kernels exports, through out 2012 to 2016 and displays India had the highest competitive advantage except 2014 and showing rapid growth from 2015 to 2016. India being largest processor and exporter of cashew kernels this could be seen clearly in the graph that its competitors Vietnam and Brazil were nowhere near India in terms of competitive advantage this could be because of more developed processing infrastructure and superior quality of the product exported by India. Even largest exporter of cashew kernels in EU i.e. The Netherlands imports cashew kernels from India, this explains why India is the leader in cashew kernels globally.

Correlation Analysis

Year	Cashew Exports to Belgium(In USD millions)	Total exports to Belgium(In USD millions)	CORREL
2016-2017	19.39	5,656.89	0.41133423
2015-2016	21.64	5,027.61	
2014-2015	28.02	5,519.47	
2013-2014	28.02	6,377.32	
2012-2013	19.51	5,507.30	
2011-2012	16.07	7,160.76	
2010-2011	14.78	5,784.38	
2009-2010	15.99	3,759.26	
2008-2009	13.63	4,480.32	
2007-2008	10.77	4,207.08	

Table 5

Year	Cashew Exports to Germany (in USD millions)	Total exports to Germany(in USD millions)	CORREL
2016-2017	19.39	7,181.61	0.78816513
2015-2016	21.64	7,092.89	
2014-2015	28.02	7,537.34	
2013-2014	28.02	7,515.81	
2012-2013	19.51	7,246.20	
2011-2012	17.57	7,942.79	
2010-2011	8.98	6,751.18	
2009-2010	7.39	5,412.89	
2008-2009	8.17	6,388.54	
2007-2008	7.32	5,121.53	

Table 6

Year	Cashew Exports to Netherlands(in USD millions)	Total exports to Netherlands(in USD mi	CORREL
2016-2017	19.39	5,069.69	0.0724753
2015-2016	21.64	4,725.10	
2014-2015	28.02	6,324.72	
2013-2014	28.02	7,995.59	
2012-2013	19.51	10,565.02	
2011-2012	73.39	9,151.25	
2010-2011	61.71	7,677.56	
2009-2010	53.11	6,397.56	
2008-2009	77.53	6,348.69	
2007-2008	58.54	5,249.08	

Table 7

Correlation analysis was applied to find the positive or negative relationship between total exports to Belgium, Germany & The Netherlands and total cashew kernels exports to Belgium, Germany & The Netherlands. In the above table it shows a positive relationship between cashew exports to Belgium/Germany and total exports to Belgium/Germany where as there is no relationship between cashew kernels exports and total exports to The Netherlands from India. The positive relation from Germany and Belgium could be due the fact that the contribute more in total exports to both the countries.

Problems faced by Cashew Industry

Labour standards

One of the nut industry's biggest concerns over the years has been labour standards. One issue in areas of Vietnam and India is home working – where employees process nuts at home – which is difficult to monitor for safety and hours worked. Even in factories women working in cashew production in India earn 30p a day and are exposed to smoke and the nut's corrosive oil, according to a 2007 Action Aid report.

Climate change

Unpredictable seasons, increased temperatures, frost, and extended drought periods are problems for the whole agricultural industry – key to mitigating its impacts is preparing farmers.

Dan Binks, Liberation Foods CIC, says the impact of climate change on nuts is most severe in the southern hemisphere, and that companies buying nuts from small farmers there should work with them to improve their understanding of the climate.

Imports of raw cashew

India is one of the largest exporter of processed cashew nut but on the other hand due to poor production of raw cashew it is one of the biggest importer of raw cashew, importing it from western African

countries. It takes four tons of raw cashew to produce about one ton of processed cashew kernel. Another reason is the lack of production of raw cashew domestically due to lack of infrastructure and raw cashew.

Competition

India faces stiff competition from Vietnam and Brazil. Productivity of these countries is more than India. These countries use latest technology and scientific plantation technique to gain high yielding crops. Vietnam has abundance of raw cashew available at competitive prices.

Exchange rate fluctuations

The exchange rates affect the profitability of exporting companies since the invoicing is done on a fixed price basis. When the domestic currency devalues against the foreign currency the profitability is eroded. The purchase agreements are sometimes signed for three to four years for most of the firms there may be a fixed time of three years.

IV. SUGGESTIONS

1. Evolving certain genetic resources or cultivators which can help in attaining vertical growth and can help the crop in sustaining seasonal fluctuations which has been a major problem as observed previously in the results of cashew exports. This will also help in meeting certain consumer standards. Evolving certain varieties through cross breeding to evolve characteristics such as high durability, resistance, efficient water use etc.
2. Integrated management of emerging pests and development of cost effective eco-friendly approach to safeguard environment and cut on costs at the same time.
3. Eco-region specific technology generation based on maximum productivity of available resources. Develop production system for efficient use of water and nutrients, sunlight and other resources.
4. Develop production and post-harvest to improve product quality and minimize environmental impacts. Increasing the value of production by reducing variability in yields, quality, reducing crop losses and increasing marketability. Mechanization of operations and use of non-conventional energies.
5. Inter- institutional mechanisms to communicate and review the programs of bio-tech, cost effective, production technologies, post-harvest technology, farm mechanization, transfer of technology and organic farming for optimization.

V. CONCLUSION

From the results and findings of the research it was concluded that India is the leader in exports of Cashew kernels but at the same time this fact can not be ignored from the findings in revealed comparative advantage that Vietnam was not far behind due to its economic pricing in the market. Aggressive selling by Vietnam pushed down the cashew prices in Indian export market.

Also the CEPCI secretary S. Kannan attributed the fall in quantity of Cashew Kernels to the limited availability of imported raw nuts due to the imposition of 9.36 per cent duty which hiked the price of raw nuts and poor production in India was also one of the reasons. The duty was imposed to prevent local traders from misusing free import norms. But it had become an impediment for the exporters. Retail cashew prices were Rs 800 to 1,000/kg while export price was \$4.64.9 per pound, (about Rs 700 per kg) last year.

Product diversification enhanced cashew and created its image as a health food which has resulted in global demand for the commodity so Indian Cashew industry is gearing up for domestic Cashew plantation and processing. India is hoping to buy more raw cashew of better quality from Indonesia and East Africa, Post GST the stock of most traders was empty and hence they were likely to buy to raise

inventory. India is currently the largest consumer of cashews with consumption touching 3 lakh tonnes, two times the export. The consumption is growing at a rate of 5% annually.

The technologies developed through new researches and strategies would help in enhancing the production and quality of cashew which in turn will help in maintaining global standards and to meet the domestic demand for cashew kernels which has been witnessing a consistent growth. Still there is a need to develop technology to help farmer yield better quality of raw cashew in large quantities to eliminate the dependence on imports of raw cashew. Increasing the productivity and expansion of area under cashew through developmental agencies will have strong impact on cashew industry development which will lead to more and more production of raw cashew domestically which will boost the export.

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