

## IMPACT OF RECESSION ON INDIAN AGRICULTURAL EXPORTS

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### **Abstract**

*The global economic recession, one of the worst crises since 'The Great Depression', directly or indirectly, affected all the countries of the world. India also got impacted by the crisis. The growth rate of the Indian economy dropped to 6.7% in 2008-09 from an average growth of 8.8% in the preceding five years. Indian agricultural products enjoy a comparative advantage in the global market. Being a global leader in production provides an opportunity for increasing the share of export of agricultural items. This can be achieved by reducing wastages and losses of farm produce and encouraging the MSMEs to invest in processed food. This will increase the pace of agricultural growth and GDP and will be beneficial to the farmers of the country.*

**Key Words :** *Global Economic Recession, Indian Economy, Agriculture Export, Revealed Comparative Advantage, Revealed Symmetric Comparative Advantage.*

### **Introduction**

Economic reforms by way of liberalization, privatization and globalization resulted in Indian economy getting integrated with the global economy. Integration, on one hand enabled India move on high growth path but also exposed Indian economy to adverse impacts from the world economy.<sup>i</sup> The economic crisis started to show effects in the middle of 2007 though it emerged fully only in September 2008 with the failure merger of several large United States based financial firms and spread with the insolvency of additional companies, governments in Europe, recession and declining stock market prices around the globe. Around the world, stock markets crashed, large financial institutions collapsed or were brought out and governments in even the wealthiest nations had to bail out their financial system.<sup>ii</sup> This recession, being one of the worst crises since 'Great Depression of 1929-32', directly or indirectly, affected all the countries of the world. India also got impacted by the crisis as the economy is increasingly becoming globalized with the intensification of trade and capital flows in the last decade or so.<sup>iii</sup> In 2008-09, following the global meltdown, the growth rate of the Indian economy dropped to 6.7% from an average growth of 8.8% in the preceding five years. The decrease in economic growth was the sharpest in the third quarter of 2008-09. During the fourth quarter the down-turn was arrested mainly due to the good performance of India's agriculture sector.<sup>iv</sup>

Agriculture in India is the pivotal sector for ensuring food and nutritional security, sustainable development and for alleviation of poverty. It is the key sector for generating employment opportunities for the vast majority of the population. Since quite some time, agriculture sector, as a whole, has been confronted with numerous challenges linked to food and energy crisis coupled with climate change and degradation of natural resources. This sector also influences essential ecosystem services such as water and carbon sequestration.<sup>v</sup>

With increase in share of manufacturing and service sectors in India's GDP, Agriculture contribution is declining in India. It touched 15.7% of GDP in 2008-09 down from 30% in 1990-91. During the last two decades, the average annual growth of agriculture sector was also less than half (around 3%) of the overall average growth of the economy (6-7%).<sup>vi</sup> Despite being confronted with numerous challenges, India is a global agricultural powerhouse. It is world's largest producer of milk, pulses, and spices, and has the world's largest cattle herd (buffaloes), as well as the largest area under wheat, rice and cotton. It is the second largest producer of rice, wheat, cotton, sugarcane, farmed fish, sheep & goat meat, fruit, vegetables and tea.<sup>vii</sup> The performance of agriculture after integration with the world markets is linked to the success of exports. India has emerged as a major player in the global agriculture market.

Agriculture has shown remarkable resilience and dynamism in contributing to a healthy growth in Indian exports.<sup>viii</sup> In the last five years, the country's agriculture exports have tripled from around Rs 80,000 crore (US\$ 12.75 billion) to Rs 2.32 trillion (US\$ 33.99 billion).<sup>ix</sup> Total exports of Indian Agro and processed food products from April to August 2013 stood at US\$ 9,711.09 million as compared to US\$ 8,806.41 million during the same period last year.<sup>x</sup>

### Objectives of the Study

The objective of the study is to determine India's comparative advantage in exports of major agricultural commodities with respect to Indian export and to compare it with that of world export market.

### Source of Data

Ten major agricultural commodities/commodity groups were selected for the analysis, based on their major shares in India's total agricultural exports as well as availability of data. The commodities considered were rice, spices, tea, coffee, cashew, oil meals, cotton, tobacco, fruits and vegetables, and Marine products.

The data on exports of selected agricultural commodities for India and world were collected from the official website of FAO, APEDA, Economic Survey of India, India budget and DGCIS during the period under study (2001 to 2011-12) were used for the purpose of analysis.

### Data Analysis

Revealed Comparative Advantage is a measure of international trade specialization.<sup>xi</sup> It identifies the comparative advantage or disadvantage a country has for a commodity with respect to another country or group of countries. It provides a ranking of commodities by degree of comparative advantage and identifies a binary type demarcation of commodities based on the comparative advantage.<sup>xii</sup> Under the assumption that the commodity pattern of trade reflects the inter-country differences in relative costs as well as non-price factors, the index is assumed to "reveal" the comparative advantage of the trading countries. The factors that contribute to movements in RCA are economic, structural, world demand and trade specialization. The advantage of using the comparative advantage index is that it considers the intrinsic advantage of a particular export commodity and is consistent with the changes in an economy's relative factor endowment and productivity. The disadvantage, however, is that it cannot distinguish improvements in factor endowments and pursuit of appropriate trade policies by a country.<sup>xiii</sup> The original index of RCA can be written as per equation (1)

$$RCA_{ij} = \frac{(X_{ij}/X_{ik})}{(X_{nj}/X_{nk})} \dots \dots \dots (1)$$

where,

- X<sub>ij</sub> = Exports of country 'i' of commodity 'j'
- X<sub>ik</sub> = Exports of country 'i' of a total agricultural commodities 'k'
- X<sub>nj</sub> = Exports of a world 'n' of commodity 'j', and
- X<sub>nk</sub> = Exports of a world 'n' of a total agricultural commodities 'k'

In the present study, country 'i' refers to India, commodity 'j' refers to any of the selected agricultural commodities/set of commodities, 'i' refers to the total agricultural commodities and 'n' refers to World. When RCA assumed the value greater than unity for a given country in a given commodity, the country is said to have a revealed comparative advantage in that commodity. However, RCA suffers from the problem of asymmetry as 'pure' RCA is basically not comparable on both sides of unity. In the index ranged from zero to one, a country is said not to be specialized in a given sector and if the value of the index ranged from one to infinity, the country is said to be specialized. The index is made symmetric, following the methodology suggested by Dalum *et. al.* (1998)<sup>xiv</sup> and the resultant index is called as 'Revealed Symmetric Comparative Advantage'. Mathematically, it can be expressed by the following equation (2)

(RCA-1)  
RSCA = \_\_\_\_\_ ..... (2)

(RCA+1)

This measure ranges between -1 and +1 and is free from the problem of skewness. A commodity is said to have comparative advantage in its exports if the corresponding RSCA value is positive and vice versa.

## Findings

**Table-1,  
India's Exports, Imports, and Balance of Trade from 2001 to 2011**

Year	value in Rs. 00 crores			percentage growth		
	Exports	Imports	Balance of Trade	Exp ortsRs	Imports	Balance of Trade
2000-01	2035.71	2308.73	-273.02	27.58	7.26	-50.97
2001-02	2090.18	2452.00	-361.82	2.68	6.21	32.53
2002-03	2551.37	2972.06	-420.69	22.06	21.21	16.27
2003-04	2933.67	3591.08	-657.41	14.98	20.83	56.27
2004-05	3753.40	5010.65	-1257.25	27.94	39.53	91.24
2005-06	4564.18	6604.09	-2039.91	21.60	31.80	62.25
2006-07	5717.79	8405.06	-2687.27	25.28	27.27	31.73
2007-08	6558.64	10123.12	-3564.48	14.71	20.44	32.64
2008-09	8407.55	13744.36	-5336.81	28.19	35.77	49.72
2009-10	8455.34	13637.36	-5182.02	0.57	-0.78	-2.90
2010-11	11429.22	16834.67	-5405.45	35.17	23.45	4.31

In gross terms the Indian export has grown 5.61 fold from Rs 2036 cr in 2001 to Rs 11,429 cr in 2010. The global recession did not impact the Indian exports initially but in 2009 stagnant at the previous year's level. Subsequently has made remarkable recovery. The growth of exports between 2001 and 2007 was 2.8 folds while during 2007 and 2011 it was 1.99 folds. This indicates a slow down due to impact of global recession.

In the same period the Imports have grown 7.29 folds from Rs 2308 to Rs 16,834 cr. In the prerecession period between 2001 and 2007 the imports saw a 2.6 folds rise, where as, in post recession period 2007 to 2011 the increase was slower at 2.1 folds. In the initial part of the recession the imports grew substantially, saw a brief period of negative growth but have shown a rising trend in recent times.

Due to the difference in the growth of exports as compared to imports the balance of trade has grown significantly by approximately 20 fold in this period from Rs 273 cr to 5405 cr.

The global slowdown had its impact on the Indian economy The trade deficit abruptly increased from Rs 3,56,448 cr in 2007-08 to Rs 5,33,681 cr in 2008-09, an increase by almost 50 %.

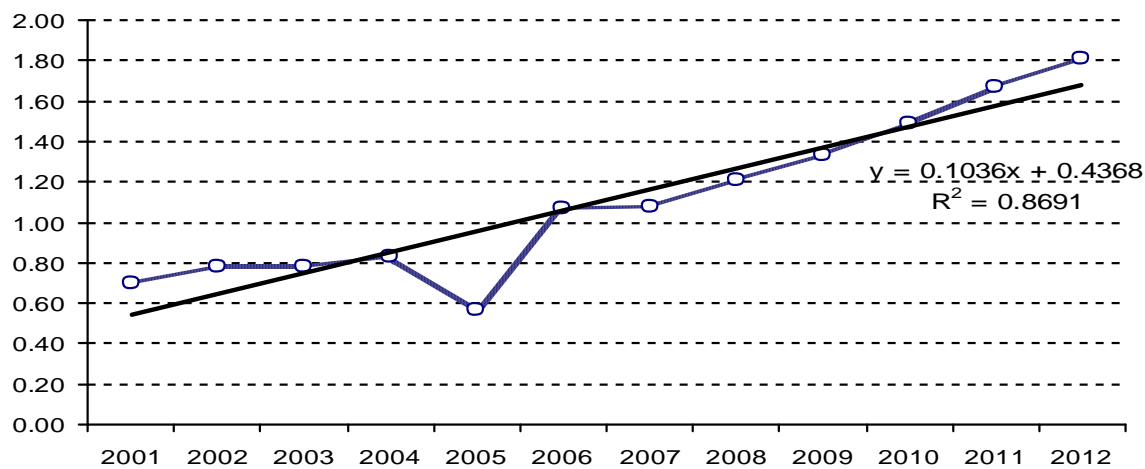
**India's Share In World Exports :** Trend in value of India's exports against the background of trends in world's exports are presented in the following table:-

**Table 2: India's Share in World Exports**

Year	World Exports (\$ B.)	India's Exports (\$ B.)	India's % Share In World Exports
2001	6124.2	43.4	0.70
2002	6435.5	50.4	0.78
2003	7474.6	59.0	0.78
2004	9086.5	75.6	0.83
2005	10240.2	59.2	0.57
2006	11523.4	124.0	1.07
2007	13774.2	150.0	1.08

2008	15987.6	194.5	1.21
2009	12376.8	164.9	1.33
2010	15100.5	226.3	1.49
2011	18024.3	302.6	1.67
2012	19350.7	351.9	1.81

In the period 2001 to 2012 Indian export grew 8.11 fold from \$ 43.4 B to \$ 352 B. In the corresponding period the global exports grew only 3.16 fold from \$ 6142 B to \$ 19,351 B. India's share in world exports has increased 2.6 folds from 0.70% in 2001 to 1.81 % in 2012. The rate of growth of exports has remained unchanged in pre-recession and post-recession periods. This indicates that the recession has Indian exports to a lesser extent as compared to the rest of the world.



**Fig 1: India's Share in World Exports**

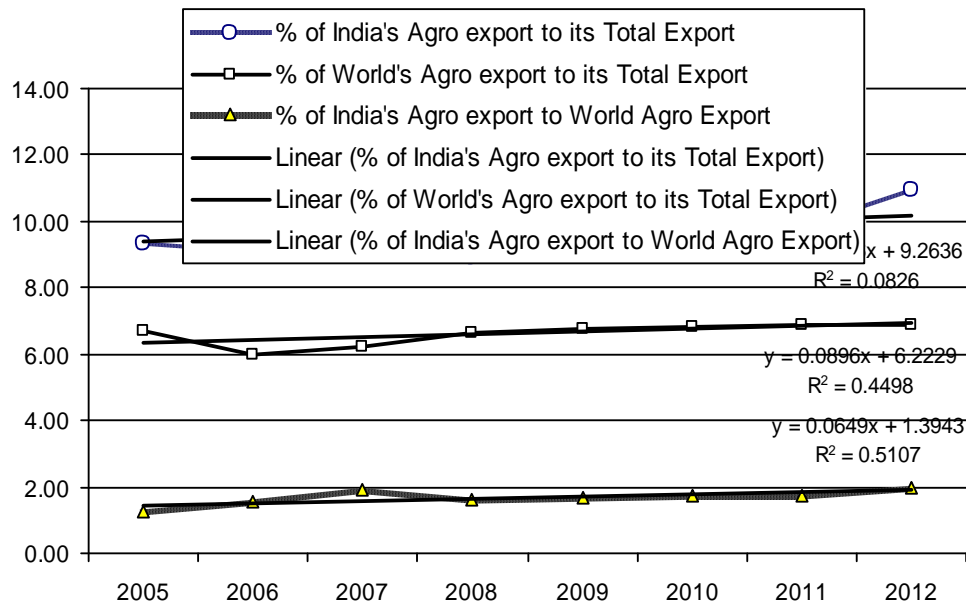
### India's Agricultural Export

Percentage of India's Agriculture export with respect to total India's export and world agro export, as well as percentage of World Agro export from 2005 to 2012 is given in Table no. 3.

**Table 3: Percentage share of India's Agriculture Export**

Year	% of India's Agro export to its Total Export	% of World's Agro export to its Total Export	% of India's Agro export to World Agro Export
2005	9.36	6.73	1.26
2006	9.08	6.01	1.56
2007	11.43	6.24	1.91
2008	8.91	6.63	1.63
2009	9.01	6.79	1.69
2010	9.52	6.81	1.72
2011	9.81	6.89	1.73
2012	10.97	6.91	1.99

The share of agricultural export vis a vis the total export is in the range of 6-7 % globally where as it stands 9-11 % for Indian export. The percentage share of world agriculture export to its total export remained constant during and after global economic crises. The recession dampened India's agricultural export, as percentage share of India's agriculture export to world agro export has decreased in 2008. India's agricultural export also reduced in 2008. The percentage share of India's agriculture export to total Indian export as well as to world agro export has shown recovery and has gradually reached to 10.97% and 1.99 respectively in 2012.



**Fig 2 : India's Share in World Exports**

**India's Export of Major Agricultural Products-** Agricultural products like tea, coffee, rice, tobacco, spices cashew, oil meals, Fruits & Vegetables and Marine products are important items of India's exports and hence foreign exchange earnings. Agriculture is also the source of raw material for agro-based industries including textiles, jute, sugar, paper and processed foodstuffs. Moreover, agricultural sector provides market for capital goods inputs and light consumer goods. The growth rate of India's exports of Agriculture products has been presented in the table 4:-

**Table 4 : India's Export of Major Agricultural Products During The Period 2007 to 2011**

Item		2006-07	2007-08	2008-09	2009-10	2010-11
Tea + Coffee	Value in Rs. Crores	3939	3905	4945	4976	6364
	% of total export	0.69	0.60	0.59	0.59	0.56
	Annual Growth (%)		-0.86	26.63	0.63	27.89
Rice	Value in Rs. Crores	7036	11755	11164	11255	11586
	% of total export	1.23	1.79	1.33	1.33	1.01
	Annual Growth (%)		67.07	-5.03	0.82	2.94
Tobacco	Value in Rs. Crores	1685	1932	3461	4345	3985
	% of total export	0.29	0.29	0.41	0.51	0.35
	Annual Growth (%)		14.66	79.14	25.54	-8.29
Spices	Value in Rs. Crores	3158	5259	6338	6157	8043
	% of total export	0.55	0.80	0.75	0.73	0.70
	Annual Growth (%)		66.53	20.52	-2.86	30.63
Cashew	Value in Rs. Crores	2491	2210	2901	2802	2819
	% of total export	0.44	0.34	0.35	0.33	0.25
	Annual Growth (%)		-11.28	31.27	-3.41	0.61
Oil Meals	Value in Rs. Crores	5504	7981	10269	7832	11069
	% of total export	0.96	1.22	1.22	0.93	0.97
	Annual Growth (%)		45.00	28.67	-23.73	41.33

Cotton	Value in Rs. Crores	2143	2081	2315	2232	2569
	% of total export	0.37	0.32	0.28	0.26	0.22
	Annual Growth (%)		-2.89	11.24	-3.59	15.10
Fruits & Vegetables	Value in Rs. Crores	3611	3515	5111	5963	5484
	% of total export	0.63	0.54	0.61	0.71	0.48
	Annual Growth (%)		-2.66	45.41	16.67	-8.03
Marine Products	Value in Rs. Crores	8001	6927	7066	9900	11917
	% of total export	1.40	1.06	0.84	1.17	1.04
	Annual Growth (%)		-13.42	2.01	40.11	20.37
<b>Total Exports</b>	Value in Rs. Crores	<b>571779</b>	<b>655864</b>	<b>840755</b>	<b>845534</b>	<b>1142922</b>
	Annual Growth (%)		<b>14.71</b>	<b>28.19</b>	<b>0.57</b>	<b>35.17</b>

**Table 5 : Revealed Symmetric Comparative Advantage of major Agricultural products**

Ag. Pro.	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11
Rice	0.83	0.72	0.78	0.77	0.76	0.80	0.90	0.91	0.93
Spices	0.63	0.48	0.64	0.79	0.78	0.84	0.85	0.89	0.98
Tea	0.78	0.76	0.74	0.73	0.71	0.69	0.67	0.66	0.61
Coffee	0.39	0.28	0.17	0.15	0.09	-0.07	-0.11	-0.12	-0.15
Cashew	0.98	0.97	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Oil meals	0.42	0.45	0.77	0.68	0.58	0.71	0.64	0.72	0.64
Cotton	-0.78	0.35	-0.03	0.11	0.13	0.17	0.19	0.19	0.21
Tobacco	-0.43	-0.40	-0.38	-0.45	-0.45	-0.45	-0.52	-0.33	-0.43
Fruits and Veg	0.17	-0.22	-0.34	-0.32	-0.49	-0.56	-0.71	-0.70	-0.77
Marine Products	0.42	0.46	0.49	0.59	0.69	0.53	0.54	0.66	0.67

Indian rice exports showed varying levels of comparative advantage in different years of the study period. In 2003-04, the estimated value of RSCA was 0.72 which improved to 0.93 in 2010-11. Therefore, it can be concluded that India enjoyed a comparative advantage in rice exports, though at varying levels.

There was a noted increase in the RSCA estimates corresponding to India's spices exports from 0.48 in 2003-04 to 0.98 in 2010-11. A emerging trend is observed in India's position of comparative advantage in spices with marginal changes. Therefore, it can be concluded that India enjoyed a comparative advantage in spices exports at high levels. India is found to have a comparative advantage in tea exports in all the years under consideration, as could be seen from the positive values of RSCA. But over the years, India's comparative advantage seemed to be deteriorating gradually. In 2002-03, the value of RSCA was 0.78 which decreased to 0.61 by the year 2010-11, depicting a clear downward trend. The results showed that India had significant and far reaching implications in the global market and direct impact on the Indian tea industry.

The computed RSCA values for coffee export indicate that the comparative edge which India exhibited in the past, deteriorated over the years, with the index gradually eroding from 0.39 in 2002-03 to -0.15 in 2010-11. A mixed trend was observed in India's position of comparative advantage with occasional ups and downs. However, the Indian coffee did not enjoy a comparative advantage throughout the study period and its position rather worsened gradually over the years.

India maintained its prime status as the largest exporter of cashew in the world throughout the study period, particularly through its comparative advantage in the international markets. The RSCA estimated of Indian cashew exports was as high as 0.98 in the year 2002-03 and till 2010-11, India did not face any notable external challenges. In this backdrop, it is imperative for the Indian cashew farmers and exporters to stay vigilant and



undertake all possible steps to counter the stiff competition. At the same time, the government should also take appropriate initiatives to make Indian cashew exports more attractive in the global markets.

The computed RSCA values for Indian oil meals export indicate that there is varying levels of comparative advantage in different years of the study period. In 2002-03, the estimated value of RSCA was 0.42 which improved to 0.77 in 2004-05. However, India had a distinct advantage during the entire period under study.

The results presented in Table 5 clearly depicted that India experienced a comparative disadvantage in export of cotton in all the years under consideration and had negative RSCA values in some years. The RSCA estimate for the year 2001-02 was -0.83 which points a quite unfavorable status of Indian cotton exports in the global market. The situation had hardly improved over the years, and RSCA value was below zero (-0.03) even during 2004-05. Given the current status, considerable efforts are needed to make India a competitive exporter of Cotton in future.

The Indian tobacco did not enjoy a comparative advantage throughout the study period as computed RSCA values for India remain negative.

India's comparative advantage in export of Fruits and Vegetables seemed to dwindle during various years. A gradual decline in India's comparative advantage had been depicted for exports of Fruits and Vegetables.

India is found to have a comparative advantage in marine products exports in all the years under consideration, as could be seen from the positive values of RSCA. In 2002-03, the value of RSCA was 0.42 which increased to 0.69 by the year 2006-07, but again decreased to 0.53 in next year. After that it has gradually increased and to 0.67 in year 2010-11. The results showed that India had significant and far reaching implications in the global market and direct impact on the Indian marine products.

### **Conclusion**

Exports have acquired added significance in the wake of liberalization wave sweeping across the world. The trend towards market economy in almost all the countries of world has increased the role of exports in developmental efforts. Therefore, exports constitute a key factor in economic development of a country. For a developing country, it is essential to build up a sizeable export surplus. The rate of economic growth is largely determined by the rate at which a country can expand its export capacity. Higher rates of economic growth tend to be associated with higher rates of export growth. A country that tries to promote growth while ignoring its export performance may succeed in the short-run, but it will be hard-pressed to sustain growth over a long period of time. Thus, it can be concluded that exports are a key factor in the growth process, not one of political astrology but of empirical fact.

The study had shown that exports of various agricultural commodities from India had responded differently in terms of comparative advantage during the pre and post global economic recession. Analysis of data indicate that there was impact on export of agricultural products and its total export as there is visible slowdown in India's agriculture and total export, but it is regaining gradually. The comparative advantage analysis of export of agricultural products reveals that India had enjoyed a comparative advantage in export of rice, spices, cashew exports, but comparative advantage in export of tea had depicted a declining trend over the years. India has also enjoyed marginal comparative advantage in export of oil meals and Marine products. But in coffee, cotton, fruits & veg. and tobacco exports, India had been found in comparative disadvantage position and continue to loose to other world exporters of these commodities.

A gradual decline in India's comparative advantage has been depicted for exports of spices and cashew also. As opposed to other commodities, India has strengthened its position in the global markets in exports of oil meals. India's status in exports of meat and its preparations and marine products has not been very comfortable. Although marine products dominate India's agricultural exports, it couldnot be attributed to India's comparative advantage in the global markets. It is assumed to be more due to a growing demand for these products among the

international consumers. India's status in exports of cotton had not been very comfortable. Although cotton products dominate India's agricultural exports, it could not be attributed to India's comparative advantage in the global market. It was assumed to be more due to a growing demand for these products among the international consumers. India's comparative advantage in most of the important agricultural exports has been found to be eroding and losing out to other competitors in certain commodities during post global recession period.

The exports of agriculture products has touched US\$ 44.59 billion in the period 2013-14. Exports of processed fruits and vegetables and other processed food exports touched US\$ 5.24 billion, fresh fruits and vegetables showed US\$ 1.45 billion, cereals at US\$ 10.54 billion, and animal products registered US\$ 5.36 billion amount of exports in the same period of 2013-14. India is the largest producer of milk in the world (128 million tonnes) which is 16 percent share of total milk production in the world. India has the largest buffalo population (111 million) which is 58 per cent of the world's buffalo population. It is the largest producer of mangoes in the world (15 million tonnes) contributing 40 percent of the world's total mango production. It is also the largest producer of bananas (30 million tonnes) It occupies the second position in fruit (81million tonnes) and vegetable production (162 million tonnes) It is the second-largest producer of fish in the world (over 9 million tonnes). India can become one of the largest fruit and vegetable exporters in the world and can equally be a large importer given its demographic diversity. This strong footing in agriculture provides a large and varied raw material base for food processing. The Indian food –processing industry is primarily export oriented. Agricultural Processed Food Products have considerable export potentials and if it is properly utilized, growers, processors, traders as well as national economy will benefit. It requires correct assessment of world market, high quality of raw produce, high quality of processed product and competitive production cost

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