



EXPORT OF ORGANIC FOOD FROM INDIA WITH SPECIAL REFERENCE TO PIGEON PEA (Arhar Dal)

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ABSTRACT- The organic food industry in India is in the early stages of growth. Higher disposable income and greater health awareness have resulted in an increased domestic demand for organic food. There is huge premium in selling organic products, not only to export markets but also to affluent, health conscious domestic consumers. India is endowed with an abundance of labour and has diverse agro-climatic region that is well suited to year round agriculture. It still has strong traditional agricultural practices. Can India make use of this comparative advantage to introduce sustainable agriculture practices and at the same time improve incomes of small and marginal farmers? On the supply side, small and marginal farmers realize that there is an opportunity to get higher net incomes even if yields are low in organic agriculture. This is because the price of pesticides and chemicals has increased significantly over the last few decades resulting in a significant increase in the cost of production. Organic farming cost could be 50% to 60% less when compared to inorganic farming practices. In addition to domestic demand side, globalized markets provide significant opportunities for Indian agriculture to capture a larger share of the global demand for organic food. This paper analyzes the growth of the organic food industry in relation to domestic and export demand. It mainly attempts to analyze the trend of export of Pigeon pea in organic food and also delves in to revealed comparative advantage of India with USA.

Keywords: Organic food, Pigeon PEA, Global markets.

I. INTRODUCTION

The organic food industry has experienced stunning growth in the past few years. Awareness among the people regarding health benefits of organic food has escalated in last five years rapidly. The organic trade association reported organic produce sales grew 8.4% in 2016 to \$15.6 billion. Produce represents about 40% of all organic food sales. The area under organic certification in India was 5.71 million hectares in 2015-16. Of this, about a fourth (1.49 million hectares) was cultivated area and the rest (4.22 million hectares) came under forest and wild areas, used for collection of minor forest produce. Still, the total percentage of agricultural land in the world that is certified organic still remains around 1% at 43.16 million hectares. This is almost four times the area covered under organic agriculture in 1999 recorded at 11 million hectares (Lernoud and Willer 2016). In Rajasthan, the area under organic farming rose to a CAGR of 22.8 per cent during the period 2009-10 and 2012-13, from 260.8 thousand ha to 483.3 thousand hectre. During the year 2012-13, Rajasthan State had the third position in terms of area under organic cultivation in the country and was fourth in terms of organic production. The top organic products exported by value were oilseeds (47.6 percent), cereals and millets (10.4 percent), tea and coffee (8.96 percent), dried fruits (8.88 percent) and spices and condiments (7.76 percent). Consumer awareness regarding the benefits of organic food products continued to grow, made organic farming a viable and lucrative farming activity for the innumerable producers.

Approx 1.24 million tonnes of certified organic products were produced in India during 2013-14, which included many varieties of food products like Sugarcane, Cotton, Oil Seeds, Basmati rice, Pulses, Spices, Tea, Fruits, Dry fruits, Vegetables, Coffee and their value added products. The production was not limited to the edible sector but included organic cotton fiber, and functional food products. The exports of organic food were estimated at approximately Rs.1328.61 crores in value terms and nearly 178 thousand tonnes in volume terms during the year 2013-14. The export of organic food had risen at a CAGR of 23.9 per cent during the period 2010-11 to 2013-14 in value terms. China and India were the major countries in terms of organic cultivation, China accounted for 62 per cent and India contributed 15 per cent, respectively, of the total organic land in Asia during the year 2013.

A large proportion, approximately ninety percent of the total organic food and drink sales take place in the developed countries of North America and the European Union (EU). Organic foods, which was earlier considered a niche product, is presently being sold through a wide variety of channels in the United

States, its consumption has been rising massively in the United States and Europe because of the rising concerns for health and environment. Organic items imported by the United States includes vegetables, fruits and nuts accounted for 32.06 per cent in 2013, and stood at US\$ 441.43 million. Among all the items imported under the vegetables, fruits and nuts category, bananas held a major share of 58.6 per cent during the year 2013. The major suppliers of organic bananas to the United States are Ecuador (22.3 per cent), Colombia (21.7 per cent), Guatemala (18.7 per cent), Honduras (15.9 per cent) and Costa Rica (10.4 per cent). Ecuador, the leading exporter of bananas to the world is the largest supplier of organic bananas to the United States.

The second significant organic fruit imported by the United States are mangoes with a share of 22.8 per cent in the total imports of fruits, vegetables and nuts. Mexico exports the largest quantity of organic mangoes to the United States with a share of 53.2 per cent in 2013. Due to the high demand for the product in the United States, Mexico, the major producer of mangoes has been expanding the production, in the recent years. The other notable exporters of organic mangoes to the United States are Peru, Brazil and Guatemala. India also exported organic mangoes to the United States, though with a minuscule share of 0.07 per cent in the total imports of organic mangoes by the United States, during the year 2013.

The imports of organic black tea into the United States have risen at a CAGR of 17 per cent as the value of imports increased from US\$ 15.2 million in 2011 to US\$ 20.8 million in 2013. India is the leading supplier of organic black tea to the United States, and the imports grew substantially from US\$ 4.7 million in 2011 to US\$ 8.6 million in 2013. China contributed 44 per cent to the total imports of organic soybeans by the United States followed by India.

According to FiBL and IFOAM, in 2013, the second largest market for organic products globally, after the United States, is the European Union with a share of 40 per cent of the organic market worldwide. The organic market continued to grow even though stagnation was witnessed in some of the European countries. The organic market in Europe, in 2013, was of Euro 24.3 billion while the organic market in the European Union was worth Euro 22.2 billion during the same year. The market for organic products in Europe and in the European Union has increased at a compound annual growth rate of 7.4 per cent and 6.9 per cent, respectively, during the period 2008 to 2013, the economic recession.

Germany is heavily dependent on imports of organic foods as the demand has been rising for health concern. Organic cereals imported by Germany are wheat, maize, spelt, rye, barley, rice and oats. Around 15 per cent of the organic cereals available in the German market were imported. Imports of organic cereals in Germany have risen from 114,000 metric tons in 2009-10 to nearly 156,000 metric tons in 2012-13, accounting for 17 per cent of the organic. Organic rice in Germany is mostly imported from Italy, India and Pakistan. Approximately, 42 per cent of the organic maize in the German market was imported from Romania, Italy, Slovakia and Hungary. Germany imports organic soybean from Italy, Romania, Kazakhstan, India, Argentina and Brazil.

Organic certified soybean are sourced from seven countries namely China (58%), United States (15%), Canada (4%), India (3%), Austria (3%), Argentina (3%) and Italy (3%). In India, organic soybean is the largest traded commodity and as per APEDA, among the organic food products exported, the organic soybeans have the largest share of nearly 70%. There is growing demand for organic meat in North America, which is leading to increased organic livestock production with a proportionally growing demand for organic feed. According to the United States Bureau Trade Data, India is a significant exporter of organic soybeans to the United States, second only to China. India exported approximately 27% of the United States' imports from the world. There was a major rise in exports from India to USA.

India to increase organic production owing to the largely prevalent traditional farming techniques which are in accord with organic agricultural practices. Strong institutional support is required to further push the organic industry from a small niche market into a mainstream agricultural industry. India has a total agricultural land of 143 million hectares, out of which only 5.2 million hectares (3.64%) of land is under

organic certification. The agricultural sector in India is characterized by a large proportion of households (85%) possessing less than two hectares of land (Agricultural Census Division 2014). Only 36% of India's land uses irrigation systems, while the rest is rain-fed (Directorate of Economics and Statistics 2012-13). The rain-fed area presents many opportunities to improve the socio-economic status of the farmers by adopting organic farming methods. The state of Sikkim has the highest percentage (54.66%) followed by Madhya Pradesh (16.80%) (Lok Sabha 2014). The government has made constant efforts towards improving the institutional support to growers by introducing several policies and programmes. The present paper aims to examine the challenges in exporting and ways to overcome them in the context of India. Looking at the demand side of organic food markets, there are several factors that affect the consumer choices like certification of the products, perceived health benefits and prices of organic food. Price premium of organic products in comparison with conventional products is often a marketing challenge for sale of organic products. Pricing has been a major limiting factor.

However, as noticed earlier, demand for organic food and drink is heavily concentrated in the EU and North America. The market in India is very small, estimated at around USD 100 million as compared to the United States market, valued at around USD 36 billion (Lernoud and Willer 2016)(Technopak 2012). Due to such a large foreign market for organic produce, a significant proportion of organic goods are exported. However, there is a rising growth in demand of organic produce in India due to the increasing income of the population and growing health concerns. The paper tried to look at the various aspects of demand and trade of organic food from India to U.S and EU. Organic agriculture is often looked upon as a sustainable alternative to chemical farming. However, there is a debate between food security and environmental sustainability aspects.

Pigeon pea is indigenous to India for years known as red gram, arhar dal, tur dal or toor dal, the history of pigeon peas goes back to 3,500 years (Neolithic Age) and reveals an remarkable journey of how it became favourite and migrated from India to east and west Africa, south-east Asia, Europe, and America. Pigeon peas are cultivated in 25 subtropical and tropical countries today, but India is by far its largest producer and consumer in the world. Pigeon pea is no exception, with India producing about 75% of the world's total produce. While India is the largest producer of the crop, it is also its largest importer as domestic demand does not meet with production. Today, only APEDA certified organic pulses and lentils), are allowed to be exported, but not exceeding 10,000 Metric Tonne and one-kilo packets of roasted gram (whole/split. The disequilibrium of demand and supply in India is pretty huge, resulting in the fact that the largest pulses producing country in the world has a shortfall of twenty percent in its domestic market. But then, this is certainly good news for importers of pulses, including pigeon peas.

Objectives of the study

To study the export of Organic foods from India.

To study the trend of export of Organic foods from India.

To study the revealed comparative advantage.

II. REVIEW OF LITERATURE

According to Agricultural and Processed Food Products Export Development (APEDA) Rs 5151 crore exports of organic food produce took place at as against Rs 3,453 crore in 2017-18. In 2018-19 the export volume was 6.14 million tonnes. India produced 2.67 million tonnes of certified organic products which included oilseeds, rice, sugar cane, cereals and millets, pulses, fruits, spices, vegetables, dry fruits, tea, and coffee. Moreover, India produced organic cotton fiber. Rs 2500 crore Domestic demand for agricultural organic produce was around. In addition, India observed a massive rise in domestic demand due to desire of chemical and pesticide-free produce.

Mie et al.(2017) compares organic Vs. conventional food production techniques related to human health and observes its significant impact and concludes consumers of organic food have healthy lifestyle in totality as the use of pesticides is restricted. Certain pesticides were found to have unfavourable effect on children's growth and development. Globally demand for organic food products has increased during the last two decades and more than doubled since 2000, Europe and North America together accounted for

the vast majority of global sales (Burton et.al,2001) Reasons why some consumers become loyal and stable buyers of organic food products over time, while others do not, have not yet been explored(Vindigni et.al,2002).According to Western Europe Davies et al.(2007)the most common reasons for choosing organic produce was concern for the environment and health issues. Availability and price were the main factors influencing actual purchase. In the early 90's Ekelund (1990) said people get motivated to buy organic products because of the absence of chemicals and health and environment were major reasons. In today's world Organic food buyers are more health conscious, and do not trust conventional food as observed by Fricke and Von Alvensleben (2010).

An enormous growth can be observed in organic food sector in tier 1 and tier 2 cities in India, indicating huge consciousness for health and nutrition. This study identified factors which affect consumers' attitude. Factors which affected consumers' attitude were health consciousness, information of the product, trust, value for money and accessibility(Paluri,2014).As prescribed by Sylvander (1993) Consumers ranked, in order of importance, health, taste, nutrition and environment were the main reasons for purchasing organic products. Food quality, absence of chemicals, environmental friendliness and a better taste were the most important factors that affect organic food s'demand Schifferstein and OudeOphuis (1997).

India has set a target of exporting organic food worth \$1 billion in the next five years with its produce receiving wide acceptance in many mature markets of the US and Europe. The vision is to make India the number one organic hub in the world over in the next 10 years. By more capacity building and bilateral agreements, India's organic exports can be enhanced to \$1 billion in the next five years," said Asit Tripathy, chairman of the Agricultural and Processed Food Export Development Authority (APEDA).Last year, India exported 135 organic products under 18 categories. The total volume was 44,476 tonnes, realising over \$125 million. The overall growth of organic food exports, thus, was 50.31 per cent over the previous year. Around 60 per cent of the country's organic products were exported to the European Union, 20 per cent to the US, 5 per cent to Japan and the rest to Canada, Australia and East Asian countries. Currently, India ranks 33rd in terms of total land under organic cultivation and 88th in terms of the ratio of agricultural land under organic crops to total farming area, as per statistics available with **APEDA**. Officials explained that under the 11th Five Year Plan (2007-2012), the country had targeted the development of five million hectares of cultivable land into certified organic farmland by promoting a scheme to compensate farmers for the lower yield of such crops. The reason for highlighting on organic farming was its positive effects on biodiversity and effective soil management that could go a long way in mitigating and even reversing the effects of climate change, as also reducing carbon emissions.

As per the observation of UNCTAD(2004) the organic agriculture sector is still very small and in developing countries organic agriculture faces several production, marketing and institutional constraints that need to be overcome. Third, subsidies and other support measures in developed countries have a serious negative impact on the competitiveness of organic products from developing countries that compete with locally or regionally produced organic products. Further this research recommended that the international community should support the efforts of developing countries, and especially of Least Developed Countries, so that economic, social and environmental benefits from organic agriculture and trade can be reaped. Developing countries should be given assistance in designing national and regional organic standards, based on international standards such as the IFOAM Basic Standards and the Codex Alimentarius Guidelines.

Midmore & Francois et.al (2011) in their study titled "Trans-European comparison of motivations and attitudes of occasional consumers of organic products" found clear differentiation between views of regular and occasional European consumers of organic products, with distinct regional differences. There was also evidence that some uncommitted consumers gradually consume more organic products and eventually become committed consumers. They took this research because most research focused on regular, loyal or heavily committed organic consumers, and scope for market growth based on occasional consumers went unexplored. From their study they reported on studies that, based on existing literature, explored the complex, interdependent and subjective nature of occasional consumers' appreciation of organic products. The first evidence source was an analysis of focus groups of occasional consumers conducted in five European countries, which compared quality and safety attributes and production and processing techniques between organic and conventional products. They concluded that many attitudes were very product-specific. The second was a large-scale survey involving 5500 respondents in six

countries of organic purchasers, each answering questions was related to one of the four products featured in the focus groups. Past purchases of organic foods were recorded, enabling regular and occasional organic consumers to be identified. Structural equation models based on these data enabled description of a number of statistically significant differences in attitudes and beliefs about quality and safety in food products between regular and occasional consumers of organic foods were found. These results suggested that by providing a clearer definition for organic products, and improving consumer understanding of the purpose and effectiveness of the organic certification system, the tendency to trade off organic for other low-input characteristics could be lessened, and market volumes could be increased. Passing the benefits of scale economies that are achieved from growth in organic markets on to consumers in the form of lower prices would also make a significant contribution, as price sensitivity was a major issue for occasional consumers.

Jensena et.al(2011) in their study on "Actual and potential development of consumer demand on the organic food market in Europe(Denmark, Italy and UK) found that Interest in purchasing organic products on a regular basis and actual changes in shopping practices did not proceed apace. Limited availability has constituted a major barrier to increasing demand among 'regular' users. Demand on the part of 'occasional' users reflected a wider range of barriers, including lack of interest in and knowledge about production and processing and lack of trust in stakeholders and certification procedures. A likely scenario for future demand is that of continued stable expansion, dependent upon whether increasing input costs will favour organic production, whether the relative gap between organic and conventional food prices becomes smaller, whether organic products will be distributed more widely on national markets, and whether support for research and conversion of organic production systems on the part of public authorities is enhanced.

Exports of Organic food from India are increasing with more farmers shifting to organic farming because of growing demand for organic food. With the domestic consumption being low, the prime market for Indian organic food industry lies in the US and Europe. India has now become a leading supplier of organic herbs, spices, basmati rice and pigeon pea, etc. The escalating demand for organic food products in the developed countries and the extensive support by the Indian government by relaxing quota limits coupled with its focus on agri-exports are the drivers for the Indian organic food industry. India exports a total of 125,807 tonne of organic food to the EU, of this 22,794 tonne is beet and sugarcane; 20,464 tonne is soybeans; 1,933 tonne is rice, 17,260 tonne is oil cakes; 13,892 tonne is oil seeds other than soybeans; and 7,995 tonne is preparations of vegetables fruits or nuts. India also exports 6,433 tonne of unroasted coffee, tea is exported in bulk, 3,798 tonne of tropical fruit, fresh or dried, nuts and spices and 3,088 tonne of flours and other products.

Organic food products in India are priced about 20-30% higher than non-organic food products. This is a very high premium for most of the Indian population where the per capita income is merely USD 800. The domestic market is not adequate to consume the entire organic food produced in the country. As a result, exports of organic food is the prime aim of organic farmers as well as the government (Ummyiah et. al ,2017)

According to Ummyiah et. al (2017) organic agriculture offers trade opportunities for farmers in the developing and developed countries because of the awareness among the people regarding health benefits of organic food has escalated in last five years rapidly. The market of organic products is expected to grow globally in the coming years and high growth rates over the medium term (from 10-15 to 25-30%) is expected. The organic market expansion makes it possible for farmers to reap the benefits of a trade with relatively high price premiums. However, all the farmers are not acquainted with this especially those living in the developing countries. In developing countries it is hence necessary for major key players (e.g. NGOs, farmer organizations, traders, exporters etc.) that they encourage and push organic farming to have up-to-date information on the available opportunities (market requirements) and trends of the organic market. Although the movement is still regarded with some dubiousness as farmers tend to see low productivity and thereby low income, the concept of organic farming has strong marketing appeal, growth forecasts are almost all positive and it has been suggested that the 'movement' is now an 'industry'. Major domestic markets for organic products lie in metropolitan cities - Mumbai,

Delhi, Kolkata, Chennai, Bangalore and Hyderabad and the export markets are Europe, America, Middle East, Asia, Africa etc.

Despite ten decades of advocacy for organics, only 1.1% of the world's agricultural land is certified organic. From the outset, the strategy has been to advance the sector 'one farm at a time'. This strategy has left the organics sector well short of the vision of the pioneers of organics who saw organic farming as a universal solution and a practice suited for all farmers and all agriculture. Recent years have seen the development of new strategies for growth of the organics sector. The strategy of 'one crop at a time' has proved successful for the Dominican Republic which now produces 55% of the world's certified organic bananas. The strategy of 'one state at a time' has seen the state of Sikkim (in India) declare itself as the first Indian organic state. Meanwhile, other Indian states are working towards all-organic status, including Mizoram, Goa, Rajasthan and Meghalaya. The strategy of 'one island at a time' has seen the Pacific islands of Cicia (in Fiji) and Abaiang (in Kiribati) commit to 100% organic farming. The strategy of 'one country at a time' sees Bhutan with the stated goal of being the world's first organic nation. These new strategies rely for success on the tripartite cooperation of government, community and commerce. In the meantime, as these new strategies play out, only 11 countries report that 10% or more of their agriculture land is organic, while 111 countries report that less than 1% of their land is certified organic, which reveals great potential for new growth.(Paul,2017)

EXPORT OF ORGANIC FOOD TO VARIOUS COUNTRIES

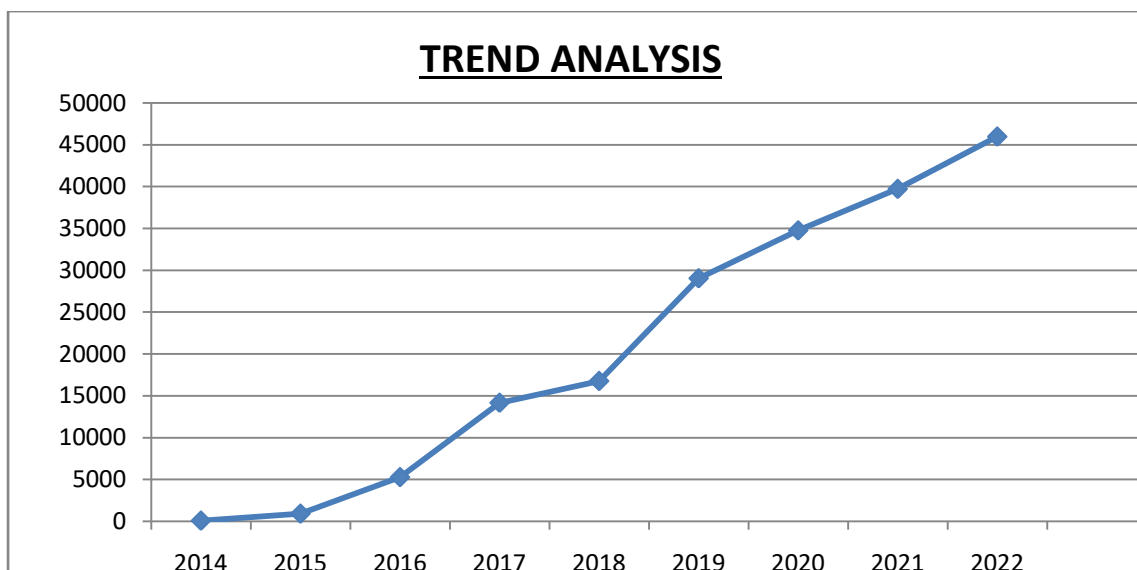
TREND ANALYSIS

(VALUE IN RS/LACKS)

HS CODE-07136000

Time series data of export of Pigeon Pea from India

YEARS	EXPORT
	48.55
2014	881.52
2015	5255.12
2016	14153.42
2017	16756.71
2018	29045.04
2019	34773.34
2020	39740.58
2021	46001.31

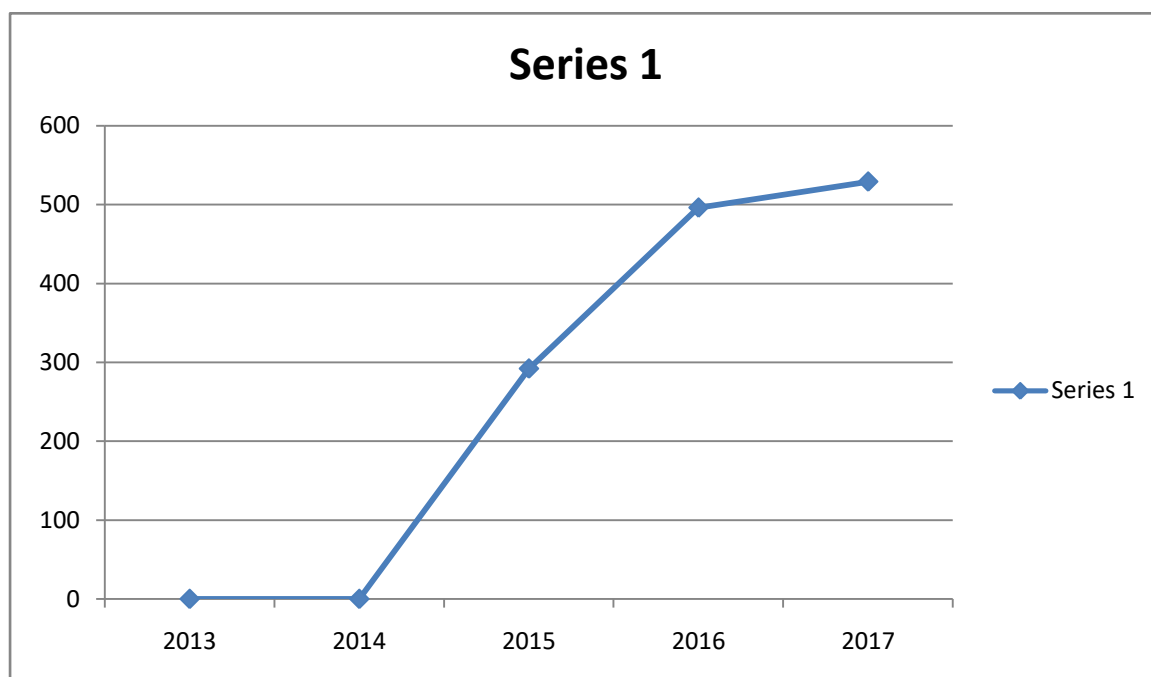


From the above trend analysis it can be deduced that it is the boom stage in the production as well as export of organic food. As India being one of the top exporter of organic food, from the above graph it can be easily drawn out that from the initial year 2014 to 2022 the trend curve is rising consistently which shows tremendous growth in demand for organic food in the last few years and hence number of organic farmers are increasing, the reasons for the increase in organic farming are consumers find organic food as economical as well as ecological and hence the demand was outstripping the supply.

Export from India to Australia

HS CODE- 07136000

YEARS	VALUE OF EXPORT FROM INDIA
	0
2014	0
2015	292
2016	496
2017	529
2018	624
2019	784
2020	912
2021	1124



The above graph of trend exhibits that there is significant consistent growth and was found to be positive in all periods. Even India allowed export of organic pigeon pea only during 2017.

A comparative analysis on the competitiveness of all major organic food 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 organic food

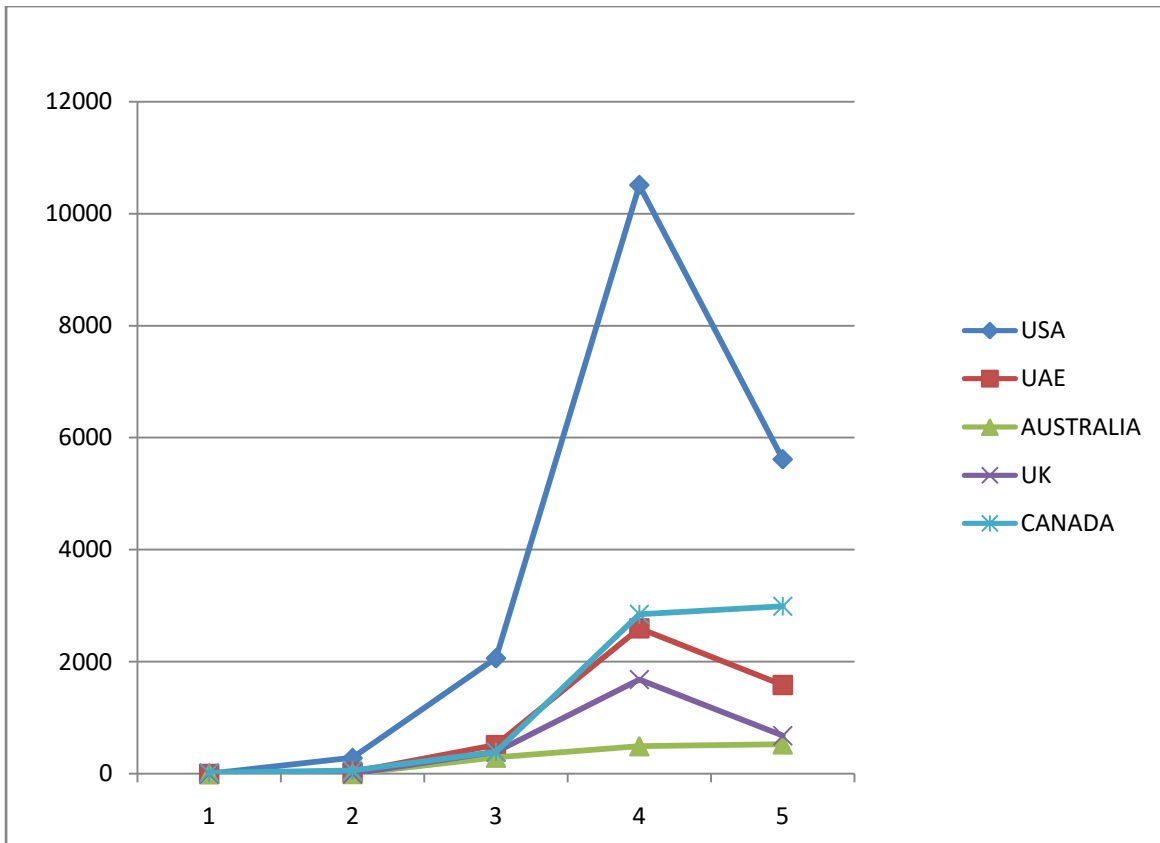
X_{wt} = world export of organic food

X_i = total merchandise export of country i

Countries	2013	2014	2015	2016	2017
USA	0	284	2065	10512	5616
UAE	0	28	513	2596	1586
AUSTRALIA	0	0	292	496	529
UK	0	0	390	1683	681
CANADA	19	59	392	2849	2993

X_w = total world merchandise export

The above is relative comparative advantage table.



III. CONCLUSION

It is believed that the overall market of Rs 4,000 crore under the organic value chain would hit Rs 10,000 to 12,000 crore by 2021, with similar increase in export. While export of organic wheat, non-basmati rice, edible oils and sugar have been exempted from all annual quantitative ceilings with immediate effect, those on pulses and lentils has been increased from 10,000 tonnes to 50,000 tonnes. Farmer export is largely to Europe, Canada and West Asia. Oilseeds were half of India's overall organic export, followed by processed food products at 25 per cent. The most sought after organic food products include soybean, sesame, flax seeds, pigeon pea, red gram, tea, and some medicinal plants. Majorly Organic product's export takes place to USA, Switzerland, Canada, the European Union, Australia, and Israel. In addition, Germany is one of the biggest importers of organic products from India, also there is a good demand in Taiwan, South Korea, and Canada.

A new approach is required to encourage the immense potential of export of organic food from India. There are several challenges at every stage of the market which needs to be addressed in order to develop the industry further. At the production level, farmers face problems regarding certification of their products, due to very high certification costs. There have been policies introduced to assist the farmers financially for certification and also organize them into Participatory Guarantee Systems (PGS) which is a low-cost certification method. While these are very helpful measures, they are not widespread. More farmers need to be included under these schemes and organized into farmer groups which will help them get greater access to markets where their products are demanded. Further, if organized into bigger groups, agricultural inputs might be available to them at a cheaper costs due to bulk purchasing. This will reduce the production costs and increase the profit margin. Small and marginal farmers find it difficult to get access to markets where their products fetch premiums. Most of the consumption is concentrated in a few cities currently, but production happens far away in the rural areas. Retail firms can help improve the market access for the farmers. Most of the organic consumers in India prefer branded products. This is an

incentive for retail firms to improve the rural urban linkages by purchasing organic produce from farmers and selling them in urban markets where the demand for organic produce is higher. There are many retailers but awareness is pretty low among farmers and consumers both.

Partnerships between the government and private retailers could prove beneficial for both parties involved as well as the farmers. More farmers will have access to better markets and get higher price premiums, which will enable them to increase their incomes. Retailers will have access to a larger quantity and variety of organic produce driving up their profits. Increase in farm incomes arising out of organic agriculture would help government policy makers to focus attention on other needs of the rural communities. Pro-active certification is essential to gain customer's trust especially if the produce is not sold directly from the farm, but through third party, such as retail shops. The NPOP certification has also escalated India's credibility in international trade for organic products.

Self-inspection systems involving both producers and consumers should also be recognised for establishing credibility. There is vital need for a programme that is particularly designed to provide aid to the organic farmers during the three year conversion period. The policy should involve the provision of annual payment during the transition period, to compensate for the loss of income occurred in the course of converting from non-organic to organic. To supplied with high-yielding seeds that are disease and insect free at subsidised rates, also farmers need to be educated about new organic farming methods and techniques, warehouses need to be built to reduce post-harvest loss, and modern technologies need to be introduced. Farmers also need financial assistance, research needs conclude the rising demand for organic products can change the fate of Indian Agriculture scenario with proper training to farmers. APEDA chairman said that demand for India's organic agricultural products is about Rs 8500 crore out of which 60% is international. EU imports 3.9% organic produce form India which is a very scanty in the total pie of import of organic food from India. To boost the production of organic pigeon pea, Farmers need to be encouraged to develop new resistant and high yielding varieties and hybrids of pigeon pea which will improve crop management practices and can help India produce more organic pigeon peas.

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