Conference Proceeding Issue Published in International Journal of Trend in Research and Development (IJTRD), ISSN: 2394-9333, www.ijtrd.com

# Supply Chain Management of Organic Food Toward Sustainable Development

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***Abstract:*** Burgeoning consumer interest in healthy cuisine has not only revolutionized the organic food industry, but it has opened myriad new markets. Beginning life as a niche market with a small consumer base, addressed by a limited number of retailers, organic products are now a preferred choice of many quality-conscious domestic shoppers.

With food expenditure growing about 7.67% from 2010 through 2012, the demand for organic food through the retail sales medium is anticipated to increase consumer food expenditure. Produce enters the market primarily through supermarkets and grocery stores, after it originates from large farms in the U.S., Mexico and South America. However, there are numerous small farms that are certified organic and also sell their produce in local markets such as farmers markets and restaurants.

This paper highlights the challenges associated with the organic food supply chain and outlines business improvement opportunities in this fast-growing market. To start things off, let's explore the difference between conventional and organic food.

## I. INTRODUCTION

Nowadays, most environmental challenges that humanity is facing relate to unsustainable consumption patterns and lifestyles. Sustainability is seen in this context as a consumption pattern that meets the needs of present generations without compromising the needs of future generations. This is also related to basic needs such as food. The present food chain is mainly based on food scarcity, GMOs, use of pesticides and antibiotics, and industrialization of the agricultural system. Growing consumer demand for organic food (OF) is based on most of these facts. Organic production combines best environmental practices, preservation of natural resources, animal welfare standards while ensuring no use of genetic engineering, pesticides, additives, or fertilizers; each stage of the organic food production being controlled and certified. On the other hand, there are some unique challenges to the cost and logistics of moving locally or regionally produced organic foods to the market. Organic food particular interest is the concept of food mileage and the situation of small and medium size farms. At this time production of such farms is rather limited amounting to a few hundred tons. Such a volume will be of little interest to mainstream grocery chains. Moreover, consumers seem to be ambivalent about channels of distribution. Trust/mistrust emerges as an important factor in deciding not only where to buy products but even whether to buy of products or not. Therefore, food mileage, price, and the certification process could contribute significantly to consumers' consumption decisions of products. Finally, the challenge that the organic food sector is currently facing is a gap in the knowledge that spans between the marketing system in place, the value chain, and the value delivery network in the organic food system.

## II. INDIAN ORGANIC FOOD INDUSTRY: TRENDS FORECAST 2019

India's GDP growth of 6.5per cent in 2017 was strong despite challenges like the implementation of GST. The forecast for GDP growth in FY2019 is predicted to be more than 7per cent. This will certainly improve the performance of different industries like Organic Foods, Pharmaceuticals and FMCG.

According to TechSci Research report, Global organic food market stood at $ 110.25 billion in 2016 and is projected to grow at a CAGR of 16.15per cent, in value terms, during 2017 – 2022, to reach $ 262.85 billion by 2022.

With Indian Organic Food industry growing in double-digit during 2013-2017, it would not be wrong to say that the industry will perform well in 2019. There are many factors that have contributed to this growth until now.

Firstly, growth in e-commerce sector has acted like a facilitator for the organic food industry to reach out to the potential consumers in Tier II and Tier III cities. Secondly, with free/low-cost access to the Internet, more and more people are getting to learn about the benefits of organic food. Therefore, the demand has gone up during 2018. Lastly, the industry landscape is becoming competitive with more and more players entering the industry.

Going by the trend in 2018, the organic food industry in 2019 will grow at a good pace. Here are a few factors that will accelerate the growth of the organic food industry.

**Objectives**

i. Assessing the importance of the channels of distribution, labeling and certification process and food mileage in the organic food market.
ii. Determining Organic Food consumers' purchasing behaviour in terms of how Organic Food consumers buy, where they buy, their sources of information, their trust orientations, and the trusted channels of distribution.
iii. Clustering Organic Food consumers with regards to their psychographics.

## III. DESIGN AND PROCEDURE

Design to address the abovementioned objectives, a mixed design is needed. On one hand, we need to assess the supply side situation by conducting personal in-depth interviews with organic food producers, channel intermediaries, final retailers and certification bodies. On the other hand, we need to survey organic food consumers to assess their consumption behavior/patterns. For the supply side, in-depth interviews were conducted with store managers of superstores, specialty stores, and farmers' markets (producers). Interviews were based on an interview guide and lasted about 45 minutes to 1 hour. The guide probes various channels members, distributors, and producers of Organic food to discuss the actual structure of their distribution channel, their marketing strategies, and trust issues related to their distribution strategies. The interviews were recorded, transcribed, coded, and analyzed by the researchers using content analysis. Two separate judges coded the data. For the demand side, a survey was administered to consumers. The population targeted for this study is Organic Food shoppers. For purpose of gaining a good representation, respondents needed to fit within a specific profile. The idea was to select randomly organic food consumers that make their purchase mainly in specialty stores, grocery chains or local markets. Data was collected using two administration modes: in- person and online. This helped to balance the proportion of consumers shopping in different channels of distribution.

**The Rise in Demand for Organic Food**

As the digital literacy rate in India is growing, the demand for organic food in India will see good growth. People are becoming aware of the harmful effects of chemicals and fertilizers used during farming in India. There is a great rise in awareness of organic farming methods, making the food more healthy and nutritious.

**Higher Spending Capacity of the Middle Class**

According to a research by the India Brand Equity Foundation, the spending capacity of the Indian middle class is anticipated to double by 2025. With the rise in disposable income and access to credit, the Indian middle class will have a high spending capacity on organic food.

**Government Regulations**

The government of India is promoting Organic Farming in the country. Hon'ble Prime Minister, Mr.Narendra Modi introduced Paramparagat Krishi VikasYojana (PKVY), under which 2 lakhs hectares has been made suitable for organic farming thereby benefitting 5 lakh farmers. This step will further boost organic farming in India in 2019. Products Export Development Authority (APEDA), the demand for Indian organic food products is on the constant increase worldwide as India exported organic products worth $515 million in the financial year 2017-18, from $370 million in 2016-17. This trend will further accelerate in 2019.

**Supply Chain Enhancement**

One of the major issues in the organic food market is the mismanagement in the supply chain of organic fruits and vegetables. The main challenge is related to the cost and logistics which are included in the moving of locally or regionally produced organic produce. In the case of organic supplies, the time of reaching the fruits and vegetables from the time of the production to the end consumers matters the most due to its less shelf life. But since the demand of the organic products is rising, the need for solving the problems in the supply chain

**The Rise in the Export of Indian Organic Food**

According to the Agricultural and Processed Food management is going to arise and the enhancement in the supply chain is expected in 2019.

As per the above trends, the organic food market is expected to boom in 2019. Since the organic market in India is still on an emerging stage, the space for growth is tremendous.

**The Evolution of Organic Farming**

The food that our ancestors consumed for thousands of years was grown with virtually no artificial chemicals. Natural methods and nature itself assisted farmers in maintaining soil fertility.

However, to address the needs of an increasing population, artificial fertilizers and pesticides were used starting in the 1920s to increase crop production. Later, genetically modified seeds (or genetically modified organisms — GMOs) were developed to increase resistance to weather, pests and soil conditions. The results of using such chemicals and GMO seeds were remarkable. The total area of cultivated land worldwide increased 466% from 1700 through 1980; yields increased dramatically, due primarily to selectively-bred, high-yielding varieties, fertilizers, pesticides, irrigation and machinery.2 However, over the course of decades, the negative impact of such farming practices — called conventional farming —has far exceeded its positive results. Apart from degraded soil, resistant pests, expensive cleanups, rampant human diseases, water contamination and dead zones in the ocean are thought to have resulted from conventional farming.

Fortunately, as organics have become more mainstream, more farmers are learning about the environmental and economic impact of their conventional methods. Some are even making the switch to organic farming.

In the U.S., depending on whose definition is used, crops that are raised without using synthetic pesticides, synthetic fertilizers or sewage sludge fertilizer — and which have not been altered by genetic engineering — are generally referred to as "organic crops."3 Similarly, organic animal products come from animals that have been fed 100% organic feed and raised without the use of growth hormones or antibiotics in an environment where they have access to the outdoors. While there are variations between what qualifies as organic from country to country, the concepts are fairly standard.

According to the USDA, organic farms and processors:

- Preserve natural resources and biodiversity.
- Support animal health and welfare.
- Provide access to the outdoors so that animals can exercise their natural behaviors.
- Only use approved materials.
- Do not use genetically modified ingredients.
- Receive annual onsite inspections.
- Separate organic food from nonorganic food.

## CONCLUSION

Consumers' interest in organic food has exhibited continued growth for the past two decades, which has attracted entrepreneurs and corporations seeing a big potential for this industry. This led to the creation of standards and regulations to guide the Organic Food industry. There are clear challenges on both demand and supply sides. Consumers are becoming more sophisticated in their purchasing decisions and companies are focusing on supply chain management in order to ensure high quality, traceability, and supply continuity. The industry also faces some other challenges: (i) maintaining and increasing consumers' trust in the products and the industry in general, and (ii) facing competition from other sustainability labels and initiatives. The industry and all its stakeholders will have to elaborate strategic responses to these opportunities and challenges. The results provide an insight into the structure of the organic food industry based on studies conducted with suppliers and consumers of products. The increasing number of consumers and the changes in organic product retailing still leads to an important imbalance between supply and demand high operating costs as well as poor supply reliability. Our results also show that there are 3 types of consumers based usage rate, trusted points of purchase, and support for the local economy and the environment. True organic food consumers, or TOF, buy products frequently, trust almost all channels of distributions, and are principle oriented. Conversely, sporadic consumers, or SOF, are consumers who do not buy on a regular base. They trust all channels of distribution but have neutral attitudes toward supporting the local economy and the environmental friendliness of products. Lastly, inexperienced consumers, or IOF, are consumers who consume products on a regular base but do not trust any channel of distribution in particular but are principle-oriented consumers. All these market segments have different consumption preferences and hence, trust. They use differently the existing channels of distribution. When comparing the channels of distribution, it clearly appears that consumers buying from short channels have specific motivations to buy organic foods that differ from consumers buying from longer channels.