

Organic Food in India: Health and Environmental Advantages and Disadvantages

1dr. C. Vilvijayan, 2dr. N. Lalitha

¹Asst. Professor of Commerce, PG Research Department of Commerce, ThirukolanjiyapparGovt Arts College, Virudhachalam.

²Asst. Professor of Commerce, PG Research Department of Commerce, ThirukolanjiyapparGovt Arts College, Virudhachalam.

Abstract

The worldwide market for organic food items has been developing essentially since the most recent decade. Organic food products have become most popular in public. The farming of organic product is a novel practice which adjusts the ecological sustainability and furthermore controls the inconvenient impact both on customer's safety by making a positive thought in the minds of the customers. This literature review is developed by using the secondary data collected from various research papers from SSRN and the internet. The purpose of this paper to examine the current status of organic farming, the Advantages, and Disadvantages of Organic Food Products. In addition, discussed to the Organic Fertilizer and Chemical Fertilizer.

Keywords: Organic Farming, Organic Food, Biodiversity, Chemical Fertilizer, Organic Fertilizer, Environment, Soil Health.

Introduction

Over the past two decades, the organic food production system was transformed from a loosely coordinated network of local producers and consumers, into a globalized system that defines formally regulated trade that links socially and spatially distant places of production and consumption (Vrhovec-Žohar, et al, 2018) and Sustainable development strategies in the agri-food industry vary widely, ranging from mainstream agriculture becoming more ecological through the development of local production and consumption net-works, organic farming to fair trade (Bryła, P, 2015). With growing modernization, latest agricultural food products are being seen in the market. Usage of synthetic fertilisers and pesticides has caused immense harm to human health and to the soil. Today an increasing number of customers are shifting to organic products for consumption. Organic products are grown under a system of agriculture without the use of chemical fertilizers and pesticides with an environmentally and socially responsible approach. (Kumar, P., and Choudhary, H., 2017) Organic agricultural products have a unique method of production which protects the environment and minimizes the erosion of soil and thereby reduces pollution by encouraging a balanced system of usage of organic standard for agriculture products in India and other economies. (Mendon, S et al, 2020)

The market for organic food products is growing rapidly worldwide. Such foods meet certified organic standards for production, handling, processing, and marketing. Most notably, the use of synthetic fertilizers, pesticides, and genetic modification is not allowed. One major reason for the increased demand is the perception that organic food is more environmentally friendly and healthier than conventionally produced food. (Brantsæter, A. et al 2017)

Review of Literature

Mendon, S et al (2020) The farming of organic products is a unique practice which balances the environmental sustainability and also controls the detrimental effect both on customer's safety by creating a positive notion in the minds of the customers. The study is basically related to the growth of Organic farm products and its influence towards customer attitude which leads to purchase intention. M, R. K. (2020) Organic food products are foods that are proceeds without using synthetic materials such as pesticides, antibiotics and chemical fertilizers. These are organic

fruits, vegetables, dairy products, Organic rice, Pulses, oil, beauty products, even ready made eatables are processed by environment friendly methods. During the production, non organic food products use synthetics. Generally, these synthetics include pesticides and fertilizers. Gumber, G., and Rana, J.(2020) The global market for organic food products has been growing significantly since the last decade. Indian organic food market has also witnessed growth and is anticipated to grow at a significant 25-30 percent. Singhal, N (2018) Organic foods claim to help serve several benefits including healthiness and sustainable production. But they largely lack customer support and thus less market demand due to the lack of knowledge, trust and information about such food products.

Nedumaran, G., and M, M(2020) The aim of the paper is to assess the involvement of organic farming to amplify the sustainability of Organic agriculture. Widespread use of chemicals in inorganic food production technology compelled the health careful people to discover and support organic farming methods in agriculture. Particularly in poorer countries sustainable Organic Farming can throw in to meaningful socio-economic and economically sustainable development. Paul, J., and Rana, J (2014) The main objective of this study is to understand the behavior of ecological consumers and their intention to purchase organic food. The study aims to determine the factors influencing consumer behavior towards organic food and The results indicate that health, availability and education from demographic factors positively influence the consumer's attitude towards buying organic food. Overall satisfaction of consumers for organic food is more than inorganic food but the satisfaction level varies due to different factors. Nalange, T. (2020) Organic farming began long back, and is more of a resurgence of how things used to be, although with advanced equipment, streamlined supply chains, and the benefit of modern marketing strategies and retailing techniques over the last few years there has been a sudden and rapid increase in demand for organic products all over the country.

Objectives of the study

1. To review the existing literature review on organic food products.
2. To analyze the organic food product marketing global market and Indian market.
3. To study the advantages, and disadvantages of organic food products.

Methodology

The study is descriptive in nature and is based on secondary data. The data are collected from various reports, research paper from SSRN, Google Scholar and internet sources.

Global Organic Food Market

Growing awareness regarding health benefits of organic food consumption, rising per capita spending on organic food products and increasing health concerns due to growing number of chemical poisoning cases are expected to drive the market in the coming years (Markets, R. A., 2020) Global organic food market stood at \$ 110.25 billion in 2016, and is projected to grow at a CAGR of 16.15%, in value terms, during 2017 – 2022, to reach \$ 262.85 billion by 2022. Growing awareness regarding health benefits of organic food consumption, rising per capita spending on organic food products and increasing health concerns due to growing number of chemical poisoning cases are expected to drive the global organic food market in the coming years. (<https://www.techsciresearch.com/report/global-organic-food-market>)

Organic Food Market in India

India's GDP development of 6.5% in 2017 was solid regardless of difficulties like the execution of GST. The conjecture for GDP development in FY2019 is anticipated to be more than 7%. This will absolutely enhance the execution of various enterprises like Organic Food processing, Pharmaceuticals, and FMCG. (<https://smeventure.com/organic-food-processing-industries-in-india-growth-predictions-in-2019/>) The organic products market in India has been growing at a CAGR of 25 per cent and it is expected to touch Rs .10,000- Rs

.12,000 crore by 2020 from the current market size of 4,000 crore, according to a report produced jointly by Assocham and Ernst & Young. The Assocham-EY joint study also estimated that the market size for Indian organic packaged food is expected to cross Rs . 87.1 crore by 2021 from Rs . 53.3 crore in 2016, growing at a rate of 17 per cent. A boom in the organic product market has already started and the organic food industry in 2019-20 is expected to grow at a good pace.(Arora, C. ,2019)

SWOT Analysis for organic food market



Source: <https://www.slideshare.net/visheshchhabra4u/organic-food-market-india>

Organic Food

Organic food, fresh or processed food produced by organic farming methods. Organic food is grown without the use of synthetic chemicals, such as human-made pesticides and fertilizers, and does not contain genetically modified organisms (GMOs)(Duram, L. A.,2019) and Organic foods have been grown or farmed without the use of artificial chemicals, hormones, antibiotics or genetically modified organisms(Brown, M. J. ,2016)

Organic Farming in India

Organic farming is native to India. Modern Agriculture in India is hardly 60 years old, whereas, the green revolution is not even 40 years yet introduced in the year 1966 as a result of considerable arm-twisting by the American. In contrast farming in India dates back to more than 4000 years. Whosoever tries to write the history of organic farming will have to refer to India and China. The farmers of these two large countries are called “farmers of forty centuries” and it is organic farming, which sustained them.(<http://navdanya.org/site/campaigns/2-uncategorised/441-organic-farming-in-india>)India started the 'Green Revolution' in the 1960s. During this time, the amount of food that could be grown in every acre of land increased manifold through the use of pesticides and fertilizers.(<https://www.worldofchemicals.com>)

Organic farming is a societal need; it is not only from the consumer’s perspective but also from a farmer point of view. For the transformation of rural agriculture into a well sustainable agriculture, organic farming might become a panacea which can build a plinth for sustainable agriculture and reimburse conversion cost and maintain the sustainability of soil.(Yadava, A. K. ,2019) India is home to 30 per cent of the total organic producers in the world, but accounts for just 2.59 per cent (1.5 million hectares) of the total organic cultivation area of 57.8 million hectares, according to the World of Organic Agriculture 2018 report.(<https://www.downtoearth.org.in/news/agriculture/india->)

Agricultural development policy for developing countries needs to focus on increasing the productivity of the land under cultivation, with lower costs, higher efficiency of products with little or no damage to both humans and the environment.(M, M., Nedumaran et al,2020)According to the International Federation of Organic Agriculture Movements (IFOAM),“Organic agriculture is a production system that sustains the health of soils, ecosystems, and people. It relies on ecological processes, biodiversity, and cycles adapted to local conditions, rather than the use of inputs with adverse effects.”

(<https://www.agritecture.com/blog/2020/3/20/6-startups-going-the-extra-mile-for-organic-food-farming>)

Difference between Organic and Non-Organic

Organic produce:	Conventionally-grown produce:
Uses natural fertilisers - manure, compost	Grown using synthetic or chemical fertilisers
Weeds are naturally-controlled using crop rotation, hand weeding, mulching and tilling	Weeds are controlled with chemical herbicides, commonly glyphosate - the dreaded <i>Roundup</i>
Pests are controlled naturally - birds, insects and traps or naturally-derived pesticides	Pests are controlled with synthetic or chemical pesticides
Organic meat, dairy & eggs	Conventionally-reared meat, dairy & eggs
Livestock given organic, hormone-free and GM-free feed	Livestock given growth hormones and non-organic, GM feed
Disease is prevented using natural methods - clean housing, rotational grazing and a healthy diet	Antibiotics and medications are routinely employed to prevent disease
Livestock must have access to outdoor areas	Livestock may or may not have access to outdoor areas

Source:<https://www.izabellanatrins.com/5-reasons-organic-this-autumn/>

Types of Fertilizer (<https://joegardener.com/the-numbers-on-fertilizer-labels-what-they-mean/>)

Organic Fertilizers

Fertilizer can be synthetic or natural (oftentimes, organic). Natural, or organic-based, fertilizer is derived from plant, animal, microbe, or mineral origin. Examples of organic-based fertilizers (or ingredients) include:

- Plant-derived: alfalfa, cottonseed meal or seaweed
- Animal-derived: bone meal or manure
- Microorganisms derived: heat-dried microbes
- Mineral-derived: green sand or rock phosphate

Inorganic Fertilizers(<https://byjus.com/biology/fertilizers/>)

Inorganic fertilizers are chemical fertilizers that contain nutrient elements for the growth of crops made by chemical means. The inorganic fertilizers are of the following types:

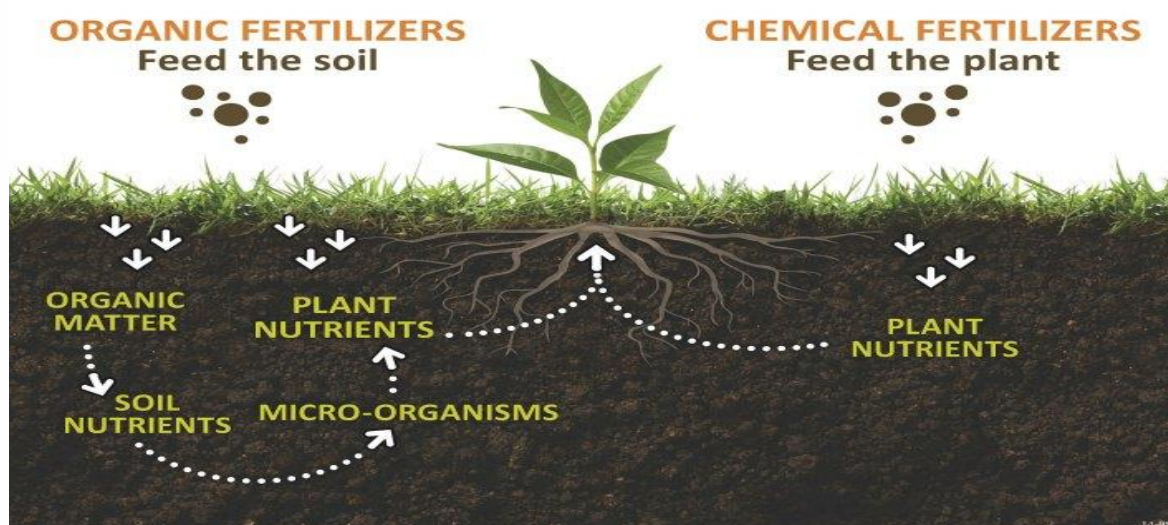
Nitrogen Fertilizers

Nitrogen fertilizers contain nitrogen necessary for the development of crops. Nitrogen is the main constituent of chlorophyll that maintains a balance in the process of photosynthesis. It is also a part of amino acids in plants and constitutes protein. Nitrogen fertilizers improve the production and quality of agricultural products.

Phosphorus Fertilizer

The main nutrient in a phosphorus fertilizer is phosphorus. The efficiency of fertilizer depends upon effective phosphorus content, methods of fertilizing, properties of soil and crop strains. Phosphorus found in the protoplasm of the cell plays an important role in cell growth and proliferation. The phosphorus fertilizer is beneficial for the growth of roots of the plants.

Difference between Organic fertilizer and Chemical fertilizers



Source: <https://joegardener.com/the-numbers-on-fertilizer-labels-what-they-mean/>

Organic fertilizers contain a lot of organic matter, soil building has a significant role; inorganic chemical fertilizers only provide crop nutrients, long-term application would adversely affect the soil, the soil produces dependence and Organic fertilizers contain a variety of nutrients, contained in a comprehensive and balanced nutrition; and fertilizer nutrients contained in a single type of long-term application of soil and food is likely to cause an imbalance in nutrients. (<http://www.hopelandwin.com/blog/chemical-fertilizers-and-organic-fertilizers.html>)

Advantages of Organic Food

Organic Food for the Environment

The pesticides used in non-organic production run off with water and pollute our water too. This is bad for water life and bad for us who drink the water or use it on our crops (Dowdell, J, 2018). Organic farming is widely considered to be a far more sustainable alternative when it comes to food production. The lack of pesticides and wider variety of plants enhances biodiversity and results in better soil quality and reduced pollution from fertilizer or pesticide run-off. (A. V., Varanasi, et al, 2019)

Organic Food for Health

Organic foods often have more beneficial nutrients, such as antioxidants, than their conventionally-grown counterparts and people with allergies to foods, chemicals, or preservatives may find their symptoms lessen or go away when they

eat only organic foods(Robinson, L)

Overall Health

Since organic food is not prepared using chemical fertilizers, it does not contain anytraces of these strong chemicals and does not affect the human body in negative ways. Natural fertilizers, like manure, work perfectly fine, and organic farmers are happy to use this smellier, yet safer form of fertilizer.(<https://www.maple3.ca/post/9-amazing-benefits-of-organic-food>)

Soil Health

Organic farming creates healthy soil. Healthy soil creates healthy food and a healthy environment. Healthy soil is the basis for organic agriculture. Organic farmers use natural organic fertilizers and soil amendments like organic matter (things you can compost), green manures (cover crops grown specifically for soil improvement, e.g. legumes), and animal manures (with safety restrictions) to build healthy soil. When food is grown in healthy soil, crops are better able to resist disease, survive drought, and tolerate insects.(<http://www.onlyorganic.org/15-reasons-to-eat-organic/>)

They taste better

Some additives that you find in processed foods may alter the taste and nutritional value of what you consume. You will not find them additives in food that is naturally grown. You, therefore, get to preserve the flavor, color, and the necessary minerals.

(<https://sweetpeabyfood.com/advantages-and-disadvantages-of-organic-foods>)

Safety

Compared with conventionally grown produce, organically grown produce has lower detectable levels of pesticide residue. One study found that organically grown crops had about one-third as many pesticide residues as conventionally grown versions.

(<https://www.phillyvoice.com/organic-vs-non-organic-pros-and-cons-059991/>)

Disadvantages of Organic Food

Low production

Given the fact that organic farming methods are not completely instilled in trend, the production to meet the growing population's demands is still not adequately met. Over a period, farmers can grow only one crop at a time, which is evidently insufficient to meet consumer's demands. This ultimately hinders the demand and supply chain.

(<https://www.myayan.com/advantages-and-disadvantages-of-organic-farming>)

Doesn't last longer

Because natural foods do not contain preservatives, they have shorter storage life and tend to spoil faster than conventional foods. If you have to buy them more than once or twice a week, you would have to double your grocery budget for food. In the end, you don't get to save money.(Chief, E. I,2015)

High Price Levels

In organic farming, the produce is usually lower due to lack of synthetic fertilizers. As such, they tend to be pricey than non organic food. Even the overhead costs are higher in organic farming.(<https://www.stylecraze.com/articles/pros-and-cons-of-eating-organic-foods/>)

Conclusion

Organic food market is steadily increasing worldwide. Consumers purchase organic food because they believe they are naturally produced, safe, healthy, and of higher quality. Organic agriculture methods are based on overall and specific principles that effectively can affect the chemical composition of the organic foods: the prohibition of the use of mineral fertilizers and synthetic pesticides. Organic livestock is an extensive production method based on pasture- and forage-based feeds(Paoletti, F, 2015)

Less chemicals, more health benefits, and a more grounded climate have demonstrated that organic food is a lot more advantageous for public. People have not advanced enough to where they can eat prepared nourishments without feeling unfavorable impacts, for example, infection, corpulence and an abundance of synthetic substances in the body. Organic foods, however, don't contain the same number of bad synthetics and really have ones that advance life span and well-being. Organic foods health benefits are not only good for individuals but society in general.

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