

## **Organic Farming: A Vision for a Sustainable Nation**

**Nandini Dutta<sup>1</sup>, Subhashini S <sup>2</sup>**

<sup>1,2</sup> Food Technology, Faculty of Engineering and Technology, Jain (Deemed-to-be University), Karnataka  
*Email - nandini.dutta@jainuniversity.ac.in*

### **Abstract**

Quality of the food products and their protection has become one of the significant concern that demands more attention of general public as well as of government. The people are consuming the food products that comprising of high pesticides, large amount of the nitrate, huge amount of the metals, antibiotic residue and many more that contribute to the negative health effects of conventionally produced foods. Furthermore, conventionally produced foods are lower in nutritional value and have less antioxidant. Because of the possible health benefits and food safety issues, demand for organically grown foods has risen in recent decades in the search for healthy food. Organic farming is characterized as farming without utilization of synthetic or various types of fertilizers or certain pesticides, growth hormones or antibiotics. Because of their nutritional and health advantages, organically grown up foods products are becoming more popular rapidly. Organic farming is preserving environment as well as makes a nation more healthy and prosperous. India is an indigenous country that has capacity and growth potential in organic farming. Despite being behind the curve in rapid acceptance of the organic agricultural for a number of reasons, India has experienced rapid development in the field of organic farming that has become world's major organic producers. Thus, by ensuring sustainable growth, organic farming having countless effect on fitness of any developing country namely India.

**Keywords:** Agriculture, Health, India, Organic Farming, System.

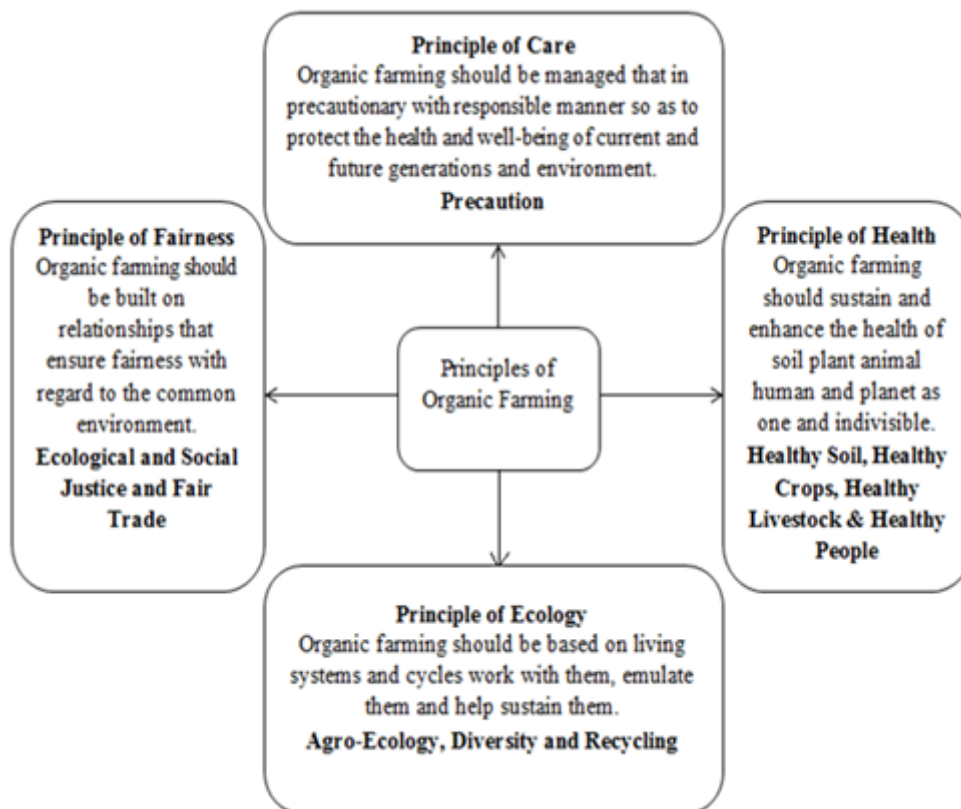
### **Introduction**

The quality of food products and protection are distinct two critical considerations which have attracted widespread attention. Growing environmental consciousness, as well as a number of food hazards (namely dioxins, as well as bacterial contamination or many more) have eroded the consumer's interest in food products safety in recent years. Intensive organic agriculture has the ability to contaminate the food supply. As a result, customers are looking for cleaner and healthier foods that are processed in ecologically pleasant and authentic ways by native systems. These demands are thought to be met by organically produced food and food goods[1]. Organic farming has become increasingly common in recent years as a cultivation method[2]. Organically grown food has now become one of consumers and farmers' best options. Organic food is part of green lifestyles. However, the question is what is organic agriculture [3]? In 1940, Northborne invented the word 'organic' in the paperback "Look to the Land" like a unit with a healthy organic existence in itself[4].

Northbourne has also described organic agriculture as 'a management system for ecological development, promoting and enhancing biodiversity, biological cycles and soils'. Winter et al. (2006) said that its attentive on limited utilization of the off-farm income as well as methods of the management to preserve, sustain and strengthen ecological harmony"[5]. Organic products have not been grown through the synthetic pesticides, multifarious types of antibiotics, as well as chemically fertilizers. Instead, the organic agricultural method is used to increase crop yield and benefit using synthetic pesticides and chemical fertilizers. The rates of growth of traditional farming are enhanced by synthetic pesticides and chemical products which remove bugs, weeds as well as pests[6]. Because pesticides or chemical fertilizers generated in synthetic form are used in traditional agriculture, the intake of usually grown food has been disheartened and the organic agriculture is continuously getting attention and becoming more popular now a days rapidly.

Organic agricultural, food processing as well as the implementation of publicly, environmentally as well as economically supportable food systems are varied and necessary. Four fundamental values of organic farming, namely health, ecology has been identified through International Federation of Organic Agriculture Movements (IFOAM). Figure 1 illustrates the four principles of organic agriculture adopted from IFOAM 1998. Organic

food is primarily a matter of inspiring and improving the biological cycles in agricultural systems, sustaining and enhancing deeply rooted soil fertility, reducing all forms of emissions, avoiding pesticide and synthetic fertilizer use, retaining genetic diversity within foodstuffs, considering the enormous socio-ecological implications for food products, and producing high level of quality foods products (IFOAM, 1998).



**Figure 1: Illustrates the four ideologies of organic agriculture adopted through the IFOAM 1998.**

### *1.1. Advantages of organic farming:*

#### *1.1.1. Advantages with respect to nutrition as well as health:*

Magnusson et al. explored that increased customer and manufacturer interest in nutritious amount of organically grown or orthodoxly developed food products had been generated by rising requirement for organically grown new goods. Organic food products namely leafy vegetables or the tubers are increased dry matter in comparison with traditional foods, according to a study conducted by the authors Agence et al. (AFSSA, 2003) [7], [8]. Similar conclusions have also been found by Woëse et al.[9]. While organic grains and the food products comprising less protein in comparison to the conventional grains as it has higher amino acid ratings. Lysine content within the organic grains have been recorded up to the 25.00%-30.00% higher in comparison to conventional grain. Organically grown cows and sheep consume low fat as well as leaner meat than traditional ones [10]. Organically fed muscle cow absorbs four fold higher linolenic acid that has been recommended for the cardio protection (to be followed by a decrement in the oleic acid as well as in the linoleic acid), in a study carried out by Nuremberg et al. (2002) [11].

A nutritionally desirable amount of vitamin E as well as carotenoids has been found within organic milk. In organic virgin olive oil, higher oleic acid was found. Organic plants are substantially richer in terms of magnesium as well as phosphorous and many more. More calcium as well as the potassium are also found main elements as well as trace elements are manganese, iron, chromium, selenium, boron, or copper etc. Organically grasped cow meat contains high concentrations of fatty acids that are polyunsaturated. Larger polyunsaturated full of fat acids or the vitamin E are present in the organically processed milk [12]. According to Lairon's

analysis centered on AFSSA, organic produce includes high dry matter or minerals, antioxidants as well as polyphenols or as salicylic type acid. This lairon study contains many other substances. In contrast to conventionally-produced food organic foods products (94.00-100.00%) have not any pesticide residue[13]. The fruits as well as vegetable products comprising a wide range of the phytochemicals namely polyphenols, vitamin C as well as carotenoids that are usually subordinate metabolites of the various plants. The organic food products namely fruits or vegetables varieties having 27.00% higher vitamin C quantity in comparison to standard fruit or vegetable.

Such types of secondary metabolites having significant cell-level regulation effects and thus defend against many types of diseases namely the cancers, heart attack or certain various type's diseases. Some organic foods like maize, strawberries and marionbberries contain more than 30% of carcinogenic antioxidants as per the report of Food Marketing Institute in the year of 2008. In the organic fruits and vegetables, phenols as well as polyphenol antioxidants amount are larger. Organic plants are known to contain twice as many phenolic compounds as traditional plants. A higher level of resveratrol is stated to be found in organic wine. Tomatoes that are gradually grown comprise higher salicylic acid in comparison to traditional tomatoes. The salicylic acids having a normal anti-inflammatory as well as the anti-stress phytochemical activity and avoids the bowel cancer disease.

In organic fruits the total sugar content is more favorable to consumers. Organically grown grain bread has a better flavor and also a better elasticity of crumb. The taste of the organic food product such as fruits and vegetables are more superior in comparison to the inorganic food products. Normally, organically grown vegetables contain very less amount of the nitrates in comparison to traditional ones. The nitrate is utilized as a fertilizer for the soil in farming but it creates several problems related to the health of the people. Nitrites are extremely reactive classes of nitrogen which compete with blood oxygen to bind with hemoglobin, contributing to the methemoglobinemia. This binds to subordinate amine also in order to produce a potent carcinogen, namely nitrosamine. Organically grown up crops are grown deprived of utilization of chemicals as well as waste sludge, low contaminated residue of pesticide products as well as pathogenic species namely *Listeria monocytogenes* and many more. Organic food thus offers improved health and nutritional benefits.

#### *1.1.2. Impact on environment:*

The organic farming plays an important role for environment protection. The environmental effects of organic and traditional farming have been thoroughly explored. Organic farming is claimed to be less environmentally damaging since synthetic pesticides which can be mainly water, soil, and local terrestrial and aquatic organisms are not allowed. [14]. Moreover, organic farms, because of crop rotation methods, are better off than traditional farms to preserve biodiversity. Organic agriculture increases the physcobiologic properties of soils, which consist of more organic substances, biomass, higher enzymes, and improved soil stability, improved temperature percolation, low water as well as wind erosion in comparison to traditional soils cultivation. Organic farming requires less energy as well as originates low wastage per area of each unit or the unit yields. Furthermore, organic soils provides high quality as well as retain water volume, resulting in the advanced yields even during dry years in organic farms.

#### *1.1.3. Impact on social economy:*

Organic farming takes more labor, and thus generates more income-generating employment per farm. The cost of an organic crop is normally 10%-40% higher than traditional plants and depend on many aspects in input as well as output arms. Inputs include high organic certified costs, the high labor costs in the region, a shortage of organic subsidies in India, and the factors that increase the prices for organic foods. However, customers are prepared to pay a high price, because health consciousness is growing. There is also a short supply of organic goods with a high demand and consequent rise in price. Local production may take place of bio fertilizers and pesticides, which also means that farmers spend low annual inputs. The organic food products is having a very long shelf life of less nitrates and larger antioxidants than traditional food. Nitrates accelerate food spoilage while antioxidants help improve food shelf-life. Organic agriculture is now an evolving economic field because of organic products' benefit and thus contributes to an increasing inclination of farmers towards organic farming.

*1.1.4. Sustainable development by organic farming:*

Three key objectives of sustainable agriculture include health system, economic profitability as well as the social or the economic equity. This awareness of the sustainability primarily based upon the premise of meeting today's needs without undermining future generations' capacity in order to meet the specific demands. The following are the very basics of the organic agriculture for the sustainable climate.

- The natural landscape and agro-ecosystem must be improved and maintained.
- Preventing natural resource overexploitation and degradation.
- Minimization of non-renewable energy resource use.
- Taking advantage of synergies found in natural ecosystems.
- Maintain and enhance soil quality by encouraging soil activity and using organic manures instead of pesticides.
- Optimal economic returns when operating in a stable, secure, and sustainable climate.
- Recognition of the benefits of indigenous experience and the conventional farming method.

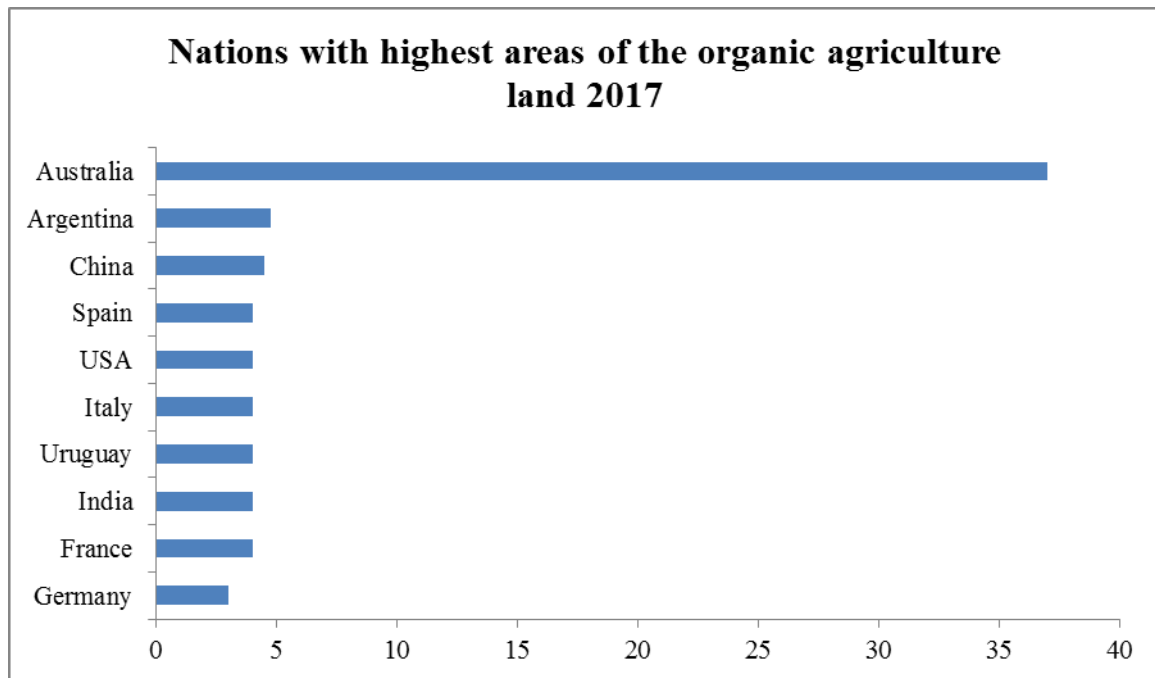
*1.1.5. Social stability is essential:*

This is characterized like a procedure or structure which promotes the wellness of the organizational members during the promotion of a healthy society in the future generations. The social sustainability may be improved by enable villages poor in order to profit from agriculture, value indigenous knowledge as well as the practises, along with latest technology, encouraging gender equality in the workplace, full participation in the improvement of trust and mental health by the vibrant rural communities, and lowering farmers' suicide rates. In rural areas, organic farms seem to produce 30% more jobs and workers are getting higher rates per unit of work production.

## **DISCUSSION**

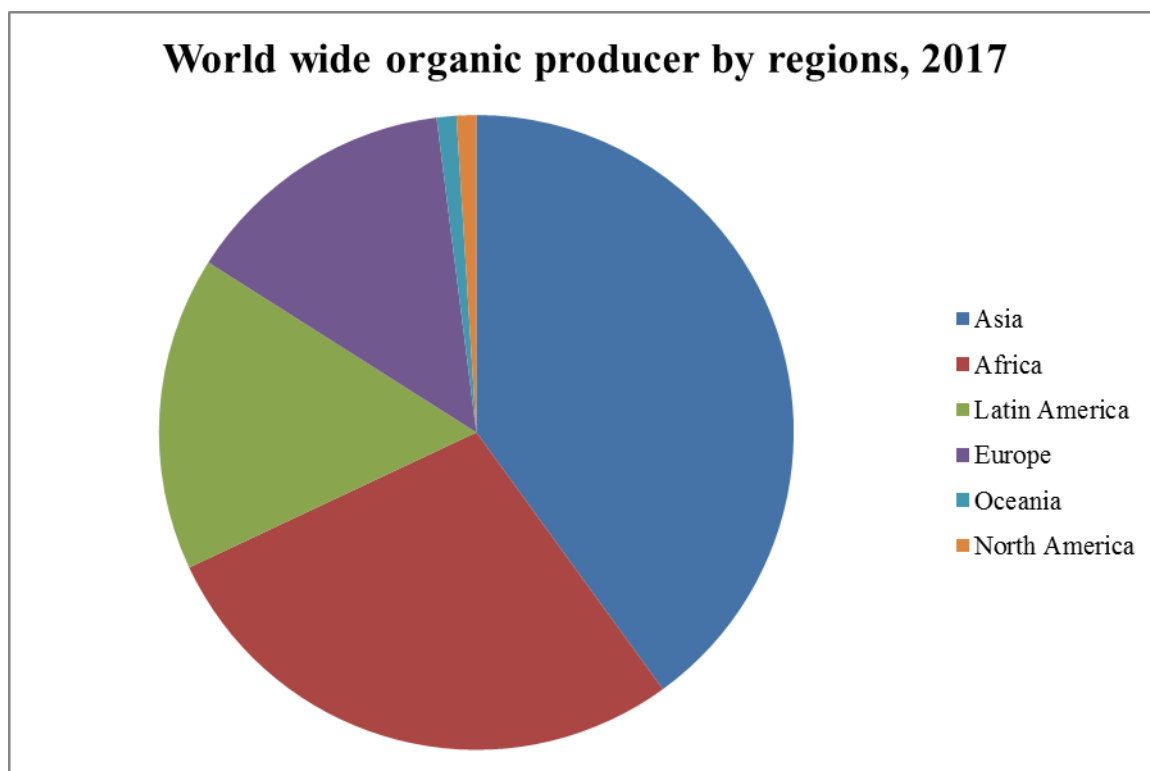
*1. Production, admiration, and monetary growth of the organic agriculture in India:*

Organic farming and food have become increasingly popular around the world. Over the last three decades, the overall region of the farmland in the organic cultivation has been gradually grown since 1985. In 2017 overall 69.80 billion hectares of naturally managed land were registered worldwide, reflecting a 20% increase of 11.7 million hectares over the previous year. This is one of the biggest growth in the organic agriculture ever reported. Figure 2 shows the nations with biggest lands of the organic farming land as reported in 2017 survey. Australia has the most organic lands with 35.650 billion hectares as well as India is on 8<sup>th</sup> place with 1.780 million hectares of overall organic farming fields. Figure 3 illustrate world's biggest organic farmers region wise, 2017.

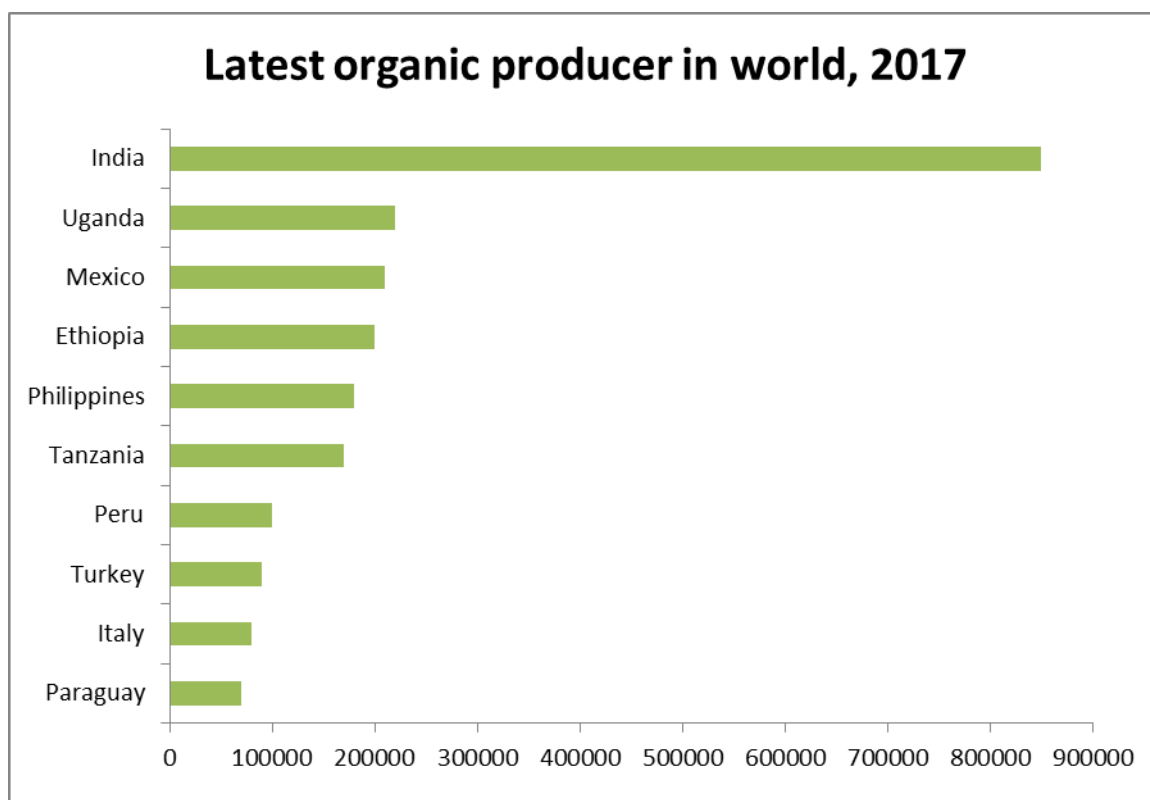


**Figure 2: Illustrates Organic agriculture land areas by nation, 2017[16].**

The number of organic products worldwide has also risen expressively every day since 2017. Asia is biggest organic food product producer (40.00%) across the globe wherein India is the largest one organic producer worldwide (83, 5000.00). In India, organic farming grew very drastically. Only 0.003% of overall cultivated field comprised 41,000.00 hectares for the organic fields. In India, organic farming output was 14 000 tonnes, 85% of which was exported during 2017, shown in figure 4. The most significant impediment to organic agriculture's development in India was a lack of government policies that made a firm choice to encourage organic cultivation. Furthermore, there are numerous major roadblocks to the development of the organic cultivation in India that is due to low awareness, lacking in pragmatic marketing policies, low biomass, insufficient farming set-up, higher farming costs, inappropriate marketing of organic food products, inefficient policies for the development of agriculture, very low financial support, inability to meet export need, and low quality products.



**Figure 3: Illustrate world's biggest organic farmers region wise, 2017[16].**



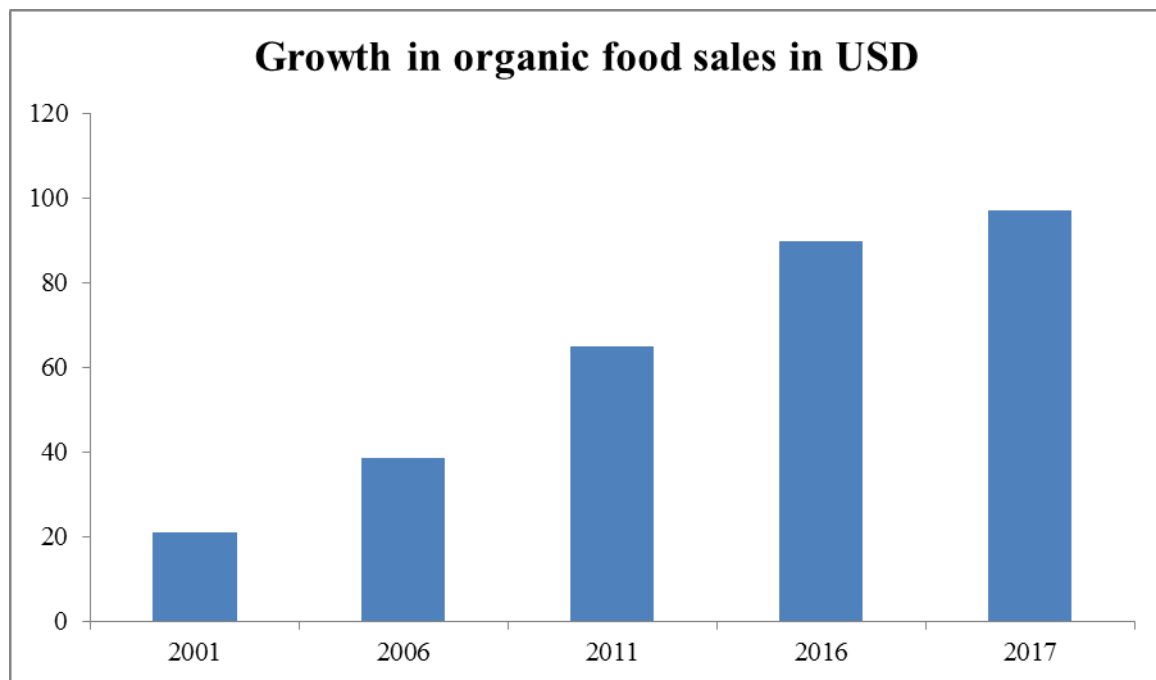
**Figure 4: Illustrates organic producers in world, countrywide, 2017[16].**

The Indian government has recently initiated a variety of programme and schemes aimed at promoting organic farming across the region. The most important of these are

- National Organic Farming Initiative
- National Sustainable Agriculture Mission

The zero budget natural farming (ZBNF) has become one of the most significant farming way where the cost of plant cultivation and harvesting has been reduced by removing outside inputs as well as utilizing the native resources for soil rejuvenation as well as restoring the ecosystem fitness through various crop systems. This just takes 10.00% less water as well as 10.00% less energy in comparison to the conventional as well as chemical crops. Cow's dung (300.00-500.00 million of essential micro-organisms per gramme of the cow dung) micro-organisms rot the dehydrated biomass over soils as well as translate this in ready-made vegetable nutrients. The plans occupied through Government of India within scheme of ZBNF has been the Krishi Vikas Yojana Paramparagat form the year of 2015-16 as well as Rashtriya Krishi Vikas Yojana. This organic type as well as very natural agriculture field has allocated the rupee of 687.50 million in Union Budget for the year 2020-21, up from rupee 461.360 million during the period of last years. According to the India's competence centre for organic agriculture, universal demand for various types of naturally grown food products like fruits and others is worth rupee of the USD 26.00 billion as well as would be expanded by USD 102.00 billion up to the year of 2025. There are multifarious famous states in India namely the Gujarat, Uttarakhand, Punjab, Rajasthan, as well as Madhya Pradesh or many more which practise organic agriculture. As per the report of agricultural and processed food products export development authority as well as survey of research institute of organic agriculture, the Indian country got rank of 8<sup>th</sup> in the organic product farming land as well as the 88<sup>th</sup> in ratio of the organic products crops in farming land. However, organic subdivision was seen substantial growth in recent decades.

Organic foods are increasingly consumed and common every day around the world. Over 2/3 of the US customers bought and bought organic food products on a weekly basis in 2008. Organic crop use has doubled since 1997 in the United States. The customer prefers organic foods with more nutritional qualities, less or no additives, and sustainable cultivation. In general, families of younger customers prefer organic fruit and vegetables over any other age group. The organic crop methods produce low yields (by an average 20.00% lowest) as compared with traditional agriculture due in part to their nutritional benefits and health effects and a positive impact in terms of environmental and socioeconomic conditions and a report conducted through UN environmental programme. The prices are higher because the production of organically produced food is limited. The higher prices have hindered the purchase of organic food by many customers. Organic farming requires huge amount of land in order to produce similar quantity of the organic food products as conventional cultivation, since chemical fertilizers which traditionally produce higher yields are not used here. Organic farming makes a negligible contribution to combating global climate change. Organic foods products consumption has gradually increased over the last few decades, especially in Western countries. Organic foods products have been the fastest-growing sections of the food industry, with sales rising about the 20.00% annually from the year of 1990. Global organic products of the food market has been reached up to the USD 81.60 million by the year of 2015, up through the USD 17.900 million in the year of 2000 (Figure 5), with the majority of segments experiencing double-digit growth.



**Figure 5: Shows worldwide overall progress in the organic foodstuff sales in USD since 2001 to 2017[16].**

India is one of the most famous agricultural country that have a 67.00% of its population as well as 55.00% of its workforce mainly depends on the agriculture sector as well as the related activities. The agriculture meets few general demands accounting for the 30.00% of total income, of Indian rapidly growing population. The bio-culture has been found to be an Indian indigenous tradition performed all through millennium within countless rural as well as agricultural cultures. The novel techniques and this rapidly increased population burdens have created very susceptibility to traditional agriculture that includes application of numerous synthetic fertilizers or harmful pesticides, genetically modified organism (GMO) am many more. Even in barious developing countries namely the India, requirement for naturally grown food products has increased, given the fact that people has become more conscious about their health as well as about safety as well as the food products quality. Organic farming provides enormous income generation prospects. The Indian soil is supposed to support organic farming through different forms of naturally available organic nutrients.

The Indian agriculture system is pragmatic one across the globe due to certain important and very significant reasons like well-established traditional farming techniques, astute farmers, vast savannas as well as the very minimal utilization of chemically fertilizers or the pesticides. Furthermore, enough rain in the country's north-east mountain areas, where some tiny chemicals are being utilized for very long time period, results in the natural organic fields. Traditional Indian farmers have a deeper understanding of soil fertility and pest management according to their experience, detailed observation, determination, as well as practices that have been found to be successful in firming organic food production as well as subsequent economic development in India. Natural agriculture has made significant strides. India has the universe biggest organic producer, with 1.780 billion hectares of the organic farming land in the year of 2017 survey. Inhana Rational Farming Technology has been recognized comprehensive organic system in order to ensure ecologically as well as the economically supportable crops production that is basically rooted on the earliest Indian philosophy as well as latest scientific knowledge. It is built on the concept of "Element Energy Activation". The technology is geared to:

- Soil-based energy: revamping of the soil-plant-micro flora dynamics by population restoration and productivity
- Plant system energization: restoring of the two plant-based defense mechanisms that use nutrients and superior plants immunity to infections by plague.



## CONCLUSION

Bio-based food production produces safer and more nutritious food. If the consumer wants organic food that is considered healthier and better, the admiration of various organic food products grows dramatically. Therefore, organic food can guarantee food products security from the farm to the platform. The organic farming ways are really more eco-friendlier in comparison to the traditional farming. The organic farming is most reliable and easy and it also saves the soil quality as well as thereby safeguards dignity of the atmosphere through encouraging customers' fitness. In addition to this, organic food products market currently has become world's faster rising market that includes India as well. Organic farming encourages holistically happiness of any nation's patrons, a nation's environmental health and a nation's economic growth by means of revenue generation. India is now world's leading producer of organic matter, as well as we may infer from this view that the incentive of the organic agriculture in India would in nearby future help to originate a nutritionally, environmentally as well as economically safe republic.

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