Organic Farming: It s Relevance to the Indian Context

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Abstract

Farming is as old as mountains and rivers, resulting in its own rich culture and knowledge about cultivation practices. With increasing consumption of fertilizers and insecticides leading to deteriorating soil health and contamination of air, water and food, there is a growing concern about global environment and so the concept of organic farming is gaining increasing importance the world over in order to develop sustainable and eco-friendly agriculture production systems. The last 5 decades were referred to as green revolution period in post independent India. During this period, productivity increased due to advancement in science and technology along with increased investment in irrigation projects and rural electrification, support prices for outputs and subsidies for inputs.Organic management relies on local human resources and knowledge to enhance natural resources, processes, respecting ecology.

KEYWORDS: sustainable, farming, organic, ecology.

The concept of Sustainable Development has caught the attention from numerous environmental movements in earlier decades. Agriculture or farming sector being the largest and most important sector of any economy, especially in developing nations, thus sustainable farming is necessary to achieve the goals of sustainable development, which is highly possible through adoption of organic farming system. Sustainable farming is helpful for proper utilization of natural resources without compromising the need of future generations. Sustainable farming focus on natural resources conservation and it can also meet the demand for food for all human beings without depletion of basic resources. Sustainable farming is not only important for the high productivity of soil but it is also helpful in socio-economic and ecological parameters. Therefore, sustainable farming is similar to organic farming. They both can bring harmony between man and nature, which is growing every day.

Organic farming is that alternative which can meet the objectives of sustainable farming. The term sustainability is very important as in modern world because conservation of natural resources, better economic returns and soil productivity in long run is under scanner. With high usage of technology and chemical based inputs the future of farming is under observation.

In India, farming is as old as mountains and rivers, resulting in its own rich culture and knowledge about cultivation practices. The last 5 decades were referred to as green revolution period in post independent India. During this period, productivity increased due to advancement in science and technology along with increased investment in irrigation projects and rural electrification, support prices for outputs and subsidies for inputs. High Yielding Varieties (HYV) was introduced, which increased yields with the use of fertilizers and were therefore successful in increasing food stocks to feed the growing population of the country. The government supported

cultivation of HYV and market liberalization to mitigate the problems of food shortage.

After the independence period, the most important emerging challenge has been to produce sufficient food for the growing population of India. In view of rising population and demand for food production, conventional farming systems cannot be abandoned but organic farming should be certified where it already exists and promoted to the newer areas to the extent possible because it seems safer yet for sustainable agriculture at a time when advanced technologies are still costly and have to be proved safe for long-term development. Organic farming is considered as an ecologically, socially and economically viable agricultural production system. Organic farming is one of the several approaches found to meet the objective of sustainable agriculture.

With time, the use of agro-chemicals, fertilizers, pesticides and other harmful chemicals on soil, we have solved our short-term goal of high returns, but are leaving a dangerous legacy for future generations in term of soil erosion, low productivity, depletion of environment and killing of earthworms and all micro-organism which give life to the soil. This chemical use on food products somewhere also causes harm to human life. As a result, many alternatives have been emerging for the protection of natural resources for a long run and make farming sustainable. One of such alternative or strategies that have become popular or necessary in modern day is Organic Farming.

In the view of increasing consumption of fertilizers and insecticides leading to deteriorating soil health and contamination of air, water and food, there is a growing concern about global environment and so the concept of organic farming is gaining increasing importance the world over in order to develop sustainable and eco-friendly agriculture production systems.(Gehlot 2006: 19) For ensuring sustainable agriculture, organic farming practices mostly relied on biological inputs rather than indiscriminate use of chemical inputs. In organic farming, negative effects of chemical farming are avoided. It is also key approach to solve the problems being faced by agriculture in India today.

Due to these harmful impacts of modem agriculture in both short and long term, a gradual shift from traditional to organic farming has been observed world over. Organic farming is based on an integrated relationship among soil, minerals, water, plants, micro flora, insects, animals and human beings; it creates productive landscapes and successfully reconciles food production and environmental conservation. (Murugan 2007: 16)

Organic management relies on local human resources and knowledge to enhance natural resources, processes, respecting ecological carrying capacities by reducing dependence on off-farm inputs and creating more balanced nutrient and energy flows. The ecosystem resilience is strengthened, food security is increased and additional income is generated. Organic farming helps in maintaining soil fertility to improve crop production and socio-economic conditions of the farmers. (Kainth n.d.: 1) It is becoming an increasingly important part of the agriculture sector. Its environmental and economic benefits have captured the attention of many countries. (Organic Agriculture at FAO 2006: 16)

Concept of Organic Farming

The term 'Organic' was first used in relation to farming by Northbourne, in his book "Look to the Land (1940), wherein he described a holistic, ecologically balanced approach of farming. (Pratap & Vaidya 2009: 5) The concept of organic farming originated with an establishment of International Federation of Organic Agriculture Movement (IFOAM) on 6th of November, 1972 in France. Today, organic food is a growing reality all over the world. (Agriculture Today 2007: 48)

The term "organic farming" refers to a process that uses methods respectful to the environment. (Atul & Pratap 2004: 1) It is one among broad spectrum of production methods which primarily aims at cultivating the land and raising crops in such a way, as to keep the soil alive and in good health by use of organic wastes (Crop, animal farm and aquatic wastes) and other biological materials along with beneficial microbes (bio-fertilizers) to release nutrients to crop for increased sustainable production in an eco-friendly pollution free environment. (Singh 2007: 11)

Organic agriculture is a productive system which strictly prohibits the use of synthetic fertilizers, pesticides, growth regulators, preservatives and livestock feed additives etc. Agriculture practices rely to the maximum extent on crop residues, animal manures, crop rotations, cropping pattern, green and green leaf manures, mulching, off farm organic wastes and bio-fertilizers to supply plant nutrients and adopt biological control methods to control pest. (Raddy 2008: 9) Organic farming is not merely a production process, doing away with chemical pesticides and fertilizers, but it is also about substituting them with organic alternatives. (Agriculture Today 2006: 22)

'Organic' in organic farming is a labelling term that denotes products that have been produced in accordance with certain standards during food production, handling, processing and marketing stages and certified by a duly constituted certification body or authority. The organic label is therefore both process and product claim. It means that the products follow the defined standard of production and handling aim at achieving agro ecosystem, which are socially and ecologically sustainable. It is based on ultimately eliminating the use of external inputs through use of on-farm resources. The efficiency of such resources is long run, has been found to be better than inorganic inputs. (Murugan & Anbumani 2007: 17)

Sustainable organic farming is very crucial for the growth of any economy. Agriculture sector holds the large number of shares in the economy. This sector provides food security, alleviate poverty and conserve the important natural resources that are important for the future generations as well. Thus, organic farming is that system who holds all the aspects related to sustainable development. As it improves soil fertility, reuse natural resources, minimal usage of artificial raw materials and improve ecological harmony.

Over the years farmers practiced Eco-friendly and sustainable farming such as mixed farming, mixed cropping and crop rotation. But under the external influence and rising demand of commercial crop production, the farmers gradually shifted towards conventional method of farming. With all sorts of chemical pesticides and fertilizers usage they were hoping an increase in the production. But it gave them adverse effects like soil erosion, low productivity, low soil fertility, change in environment, dependence on water etc. Recently, the farmers started realizing the

adverse effects of conventional farming is becoming highly capital-intensive crop as the prices of inputs are continuously rising and so its cost of production. 70% of farmers are small and marginal for them it s difficult to afford high prices of inorganic inputs. The major cost inputs in conventional farming are chemical fertilizers and pesticides and some of them are plant regulator which is trending these days among conventional farmers. But in organic farming these inputs can be replaced by cow dunk, farmyard manures, low-cost seed and locally made pesticides. Although there is higher rate of labour inputs required in organic farming.

In the report published by the Rodal Institute, Smallwood (2012) showed that in 1981 on 30 years study that comparison of organic and conventional farming methods found that organic farming is the healthiest and safest way to feed the world, provide much-needed jobs, reduce our greenhouse gas emissions and protect precious natural resources. Following are some of the most important findings of the study:

- Organic farming yields matched or surpassed conventional yields.
- In years of drought, organic yields outperformed conventional ones. In fact, organic corn yield were 31% higher than conventional ones during droughts.
- Organic farming uses 45% less energy.
- Organic farming is more sustainable because its methods build rather than deplete soil organic matter. Soil health increased in the organic systems studied but remained unchanged in conventional ones.
- Conventional farming produces 40% more greenhouse gases.
- Organic farming was nearly 3 times more profitable than conventional farming.

Therefore, the institute has announced that organic farming can not only feed the world, but can improve health.

Similarly, according to Organic Farming Research Foundation (2012), if the nation is to have Sustainable food supply well into the future, organic farming must become the leading form of agriculture. The demonstrated benefits to soil and water organic farming have proven benefits to human health, to the nation s economic prosperity and to the health of the planet. A review of the research finds:

- Organic farming improves soil and water quality.
- Organic farming enhances biodiversity and pollinator health.
- Organic farming produces less carbon, slowing climate change.
- Organic farming reduces toxic chemical exposure.
- Organic food can feed the world.
- Organic is a vital sector in the US economy.
- Organic farming increases farmer s sales and profits.
- Organic farming strengthens job growth in the agriculture sector.

Pandey and Singh (2012) indicate that access to certification cost involved therein and a time lag of three years (conversion stage) often constrain farmers especially small land holders in India from adopting organic farming. Organic produce needs certification to ensure that all synthetic inputs are prohibited and soil building approaches are followed. Certification authenticates organic produce for consumers and validate price margin of the product in the market. The certification process aims at converting the growing area to comply with requirements of standard within a period of 3 years. For this reason, farmers who adopt organic management need to wait for up to three years under certification procedures that requires purging of chemical residues.

According to the Organic Trade Association (OTA 2008), organic food sales have averaged 20% growth per year since 1990. This growth is remarkable considering that total food sales averaged about 3% growth over the same period.

Kapoor R. (2012, The Business Line) writes about the off-shore demand for organic food market is one of the major drivers of organic agriculture in India, due to relatively increased returns with lesser input costs. According to ICCOA (International Competence Centre for Organic Agriculture) estimates approx 1.5 % of all agricultural in India is expected to be organic certified by 2012 and through its strong organic export programmer, India will hold 2.5% of the global market.

Principles of Organic Farming

The International Federation of Organic Agriculture Movements (IFOAM) has suggested the basic four principles of organic farming i.e., principle of health, ecology, fairness, and care. The main principles and practices of organic food production are to inspire and enhance biological cycles in the farming system, keep and enhance deep-rooted soil fertility, reduce all types of pollution, evade the application of pesticides and synthetic fertilizers, conserve genetic diversity in food, consider the vast socio-ecological impact of food production, and produce high-quality food in sufficient quantity. The four major principles are as follow (IFOAM, 1998):

- Principles of CARE Organic farming should be managed that in precautionary and with responsible manner so as to protect the health and well-being of current and future generations and the environment – Precaution
- Principle of HEALTH Organic farming should sustain and enhance the health of soil, plant, animal, human and planet as one and indivisible Healthy soil, Healthy Crops, Healthy Livestock & Healthy People
- Principle of ECOLOGY Organic farming should be based on living systems and cycles, work with them, emulate them and help sustain them Agro-ecology, diversity & Recycling
- Principle of FAIRNESS Organic farming should be built on relationships that ensure fairness with regard to the common environment - Ecological and social Justice and fair trade

Major Products Produced in India by organic Farming

Type of Product	Products
Commodity	Tea, Coffee, Rice, Wheat
Spices	Cardamon, BLACK PEPPER, WHITE pepper, Ginger, Turmeric, Vanilla, Tamarind, Clove, Cinnamon, Nutmeg, Mace, Chili
Pulses	Red gram, Black gram
Fruits	Mango, Banana, Pineapple, Passion Fruit, Sugarcane, Cashew nut, Walnut
Vegetables	Okra, Brinjal, Garlic, Onion, Tomato, Potato
Oil Seeds	Mustard, Sesame, Castor, Sunflower
Others	Cotton, Herbal extracts

Major Organic Products Exported from India

Product	Sales (tons)	Product	Sales (tons)
Tea	3000	Wheat	1150
Coffee	550	Pulses	300
Spices	700	Oil seeds	100
Rice	2500	Fruits and Vegetables	1800
Cashew nut	375	Cotton	1200
Herbal Products	230	Total	11925

Source: http://www.hillagric.ac.in/edu/coa/agronomy/lect/agron-3610/Lecture-3-Relevance-of-Organic-Agriculture-in-Present-Context.pdf

Relevance of organic agriculture under different farming situations

- Rainfed and Dry land area
- Hilly areas
- Irregular monsoons
- Dwindling cattle population

Organic agriculture has emerged as an important priority area globally in view of the growing consciousness for safe and healthy food, long term sustainability and environmental concerns despite being contentious in history. Green revolution although paved way for developing countries in self-sufficiency of food but sustaining production against the limited natural resource base demands has shifted steadily from resource degrading chemical agriculture to resource protective organic agriculture. The essential concept remains the same, i.e., to go back to the arms of nature and take up organic farming to restore the loss. Organic farming emphasizes on rotating crops, managing pests, diversifying crops and livestock and improving the soil. The rainfed areas particularly north-eastern regions where least or no utilization of chemical inputs due to poor resources provides considerable opportunity for promotion of organic farming thereby reflecting its vast but unexplored scope. However, significant barriers like yield reduction, soil fertility enhancement, integration of livestock, marketing and policy etc., arise at both macroscopic and microscopic levels; making practically impossible the complete adoption of pure organic farming; rather some specific area can be diverted to organic farming and thus a blend of organic and other innovative farming systems is needed. Adoption of Integrated Green Revolution Farming can be possible to a large extent, where the basic trends of green revolution are retained with greater efficiency and closer compatibility to the environment. This review paper attempts to present the recent global and regional scenario of organic farming particularly highlighting the scope, prospects and constraints in the northern areas.

Organic farming in India is attaining popularity day by day. India is endowed with various types of naturally available organic forms of nutrients in different parts of the country, and it will help for the organic cultivation of crops substantially. The rising population of India has started creating demographic pressure on the agriculture sector to maintain food security. For producing better crop yield, chemical fertilizers and pesticides were used, and this creates more health hazards. To generate good

health and environment, a need arise a shift to organic agriculture. India is home to 30 percent of the total organic producers in the world. Still, it accounts for just 2.59 percent (1.5 million hectares) of the total organic cultivation area of 57.8 million hectares (World of Organic Agriculture Report, 2018). Organic farming is beneficial for natural resources and the environment.

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