

Review Article

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A Bird Eye View on Status of Organic Farming in the World: An Indian Prospective

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ABSTRACT

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Green Revolution has made to improve agricultural production and productivity. Along with that, it caused severe stress on soil fertility, decreased chemical efficiency, failure of overall crop yield. As a result of the above factors, the farmer becomes more miserable year by year and induced them to commit suicide. This paper attempts to bring together the present status of organic farming in the World and India. The greater extent of organic agricultural land is occupied by Australia (35.65 million hectares). Organic international estimates that 1.78 million hectares in India is under organic farming, i.e., 2.5% of the world organic area, and stood first with 835,000 organic producers at the global level. Addition of organic manure, Biofertilizer, and Vermicompost, provides a continuous supply of micronutrients and macronutrients to the crops, which is eco- friendly.

Introduction

Agriculture and allied sectors are the largest sources of livelihoods in India. 54.6% of the population is engaged in it, which contributes 17% to the country's Gross Value Added (Census 2011). Developmental practices in Green Revolution (GR) has made agricultural farming moves from low-input, low-

technology (traditional agriculture) to the intensive and even highly intense scales of inorganic farming (INF) had caused to increase agricultural production.

Inorganic farming has raised severe stress on soil fertility, decrease in microorganism biodiversity, less fertile land, increased soil erosion, imbalance in genetic stability,

efficiency of chemicals dropped and Native breeding seeds adapted to diverse ecosystems were replaced by HYBRID variety of seeds (Bt Cotton in India in 2002) are introduced into ecosystem has made farmer to lost Rs. 1 billion due to crop failure, increase in monopolies and high subsidies has caused to reduce half price for farmed crops. As a result of the above factor caused the farmer to become more miserable year by year and induced them to commit suicide (Sharma, 1991; Ray, 2001; Vandana Shiva *et al.*, and Deshpande, 2002).

Fertilizer and pesticides used to increase crop production to meet food security, besides it causes soil and groundwater pollution, biodiversity loss, and most of them are human/animals disease-causing (Zhang *et al.*, 2007; Fan, 2017; Liu *et al.*, 2008; Zhang *et al.*, 2011). The recent Diversification, fast-growing, and developmental changes in the Indian economy have made to continuous decrease in agriculture share in the Gross Value Added (GVA) from 18.6 percent in 2013-14 to 17.4 percent in 2016-17. To overcome present farming problems most of the farmers, agribusiness and scientists are looking forward for a modified form of (INF) called organic farming or biological farming and it is productive, sustainable and beneficial impact on environmental (Reganold *et al.*, 1993; Letourneau and Goldstein, 2001; Mader *et al.*, 2002; Gracia and deMagistris, 2008). The main goal of organic agriculture is to maximize the health and productivity of interdependent communities of soil life, plants, animals, and people. According to (FAO/WHO Codex Alimentarius Commission, 1999) "Organic farming" is defined as a holistic production management system which promotes and enhances agro-ecosystem health, biodiversity, biological cycles, and soil biological activity, use of off-farm inputs and avoids the use of pesticides and fertilizers.

Status of organic farming in the world

According to the latest FIBL survey, 2019, in the world, 69.8 million hectares of area is covered under organic production being practices by 2.9 million producers across 181 countries in 2017. Compared with 2016, almost 12 million hectares or 15% more is was reported in 2017. These are because of the increase in organic agricultural land from Australia (8.5 million hectares) in addition to that China, India, and Italy.

The greater extent of organic agricultural land is occupied by Oceania regions (51%), followed by Europe (21%), Latin America (11%) and Asia (9%). While Country-wise Australia (35.65 million hectares) stand first, next to it Argentina (3.39 million hectares) and China (3.02 million hectares). Most of the organic agriculture lands were grassland/grassing area (nearly 38million hectares) and remaining constitute 15 million hectares area of croplands. In Asia major group of cereals (wheat and rice) cultivated in china (1million hectares). While India and China together contribute 582,000 million hectares used for oilseeds (soya bean) production. Due to consumer demand, along with Global organic food market showing increasing trend mostly by the United State of America, whereas per capita consumption is highest in Switzerland and Denmark.

Apart from organic agriculture, 71,972 hectares of organic aquaculture present. The overall organic aquaculture production in 2016 was 40,0000 metric tons and mainly concentrated in Asia (77 percent, China 30,0000 metric tons) and Europe (22%). The global market has increased from17.9 million US dollars to89.7 million US dollars within 15 years. In 2016, the largest organic markets shared by countries like the United States, European Union, and China.

Organic farming in India

Due to various agro-climatic regions, India is blessed with lots of potentials to produce all varieties of organic products. The organic agricultural land area of India has been increasing at a rapid rate.

Various national and international government schemes are providing financial support for small scale farmers, increasing availability of organic seeds in the market, processing methods, distribution, and marketing and certification programs contributed to the growth of organic farming.

Research Institute of organic agriculture and IFOAM (2019) - Organic international estimates that an area of 1.78 million hectares in India is under organic farming and representing nearly 2.5 percent of the world's organic area. Apart from this Wild collection and further non-agricultural areas is almost 4.2 million hectares area (FiBL-2018). The production of organic products like rice, wheat, pulses, spices, vegetables, organic oilseeds, tropical and temperate fruits increasing day by day and produced around 1.7 million MT of certified organic products in 2017-18, which includes all the varieties of products such as oilseeds, sugar cane, cereals and millets, cotton, pulses, tea, coffee, etc. were exported (4.58 lakh MT) to the USA, Switzerland, Canada, Australia, Israel, South Korea, Vietnam, New Zealand, Japan, etc. (APEDA). In terms of export value, Oilseeds leads among the products followed by Cereals and millets, plantation crop products such as Tea and coffee, dry fruits, etc. In the year 2018-19, India produced 2645315.67 tons of organic agricultural products of which 2607385.00 tons contributed from farm production and 37930.67 tons contributed from the wild harvest production (NPOP, APEDA). A total of 614089.61 tons of organic agricultural products has been

exported in the same year and the export value was 5150.99 crore (NPOP, APEDA). A total of 1.92 lakh farmers were engaged with organic cotton farming in India and produced 1.75 lakh MT organic cottonseed with 0.594 lakh MT of organic cotton fibre in 2016-17 (FiBL and IFOAM- Organic international, 2019). In addition to that producer of cotton (contributes 55.7%) to total organic cotton production and these are exported to different countries like the European Union, USA, Canada, Saudi Arabia, UAE, Japan, Singapore, and Australia.

India has great potential to be an organic farm producer, processor, and exporters (At present 669) in the future. According to the FiBL report, the annual export of organic products has fetched 269 million €. It indicates that organic farming in India has to improve the agricultural system to catch up the leading countries like Australia (35.65 million hectares), Argentina, China, and Italy. However, India shows the largest organic producers (835,000 numbers) at the global level.

India occupied 5th position in the world with the largest wild collection and beekeeping areas in 2017 (FiBL and IFOAM- Organic international, 2019). Among all the states, Madhya Pradesh has occupied the largest area under organic certification followed by Rajasthan, Maharastra and Uttar Pradesh (APEDA) (Fig. 1 and 2).

Government of India initiatives to encourage organic farming in the country

To boost up the income of farmers, certified organic farming and potential market for traders through Paramparagat Krishi Vikas Yojana (PKVY) is promoting the organic farming by adopting organic villages by participatory Guarantee system (PGS) through cluster approach. PGS in India has

made cost-effective, an alternative to the third-party certificate, especially for small farmers, and they certify the producers and improve the product documentation for market credibility.

Department of Agriculture, Cooperation and Farmers Welfare has launched Mission for Integrated Development of Horticulture (MIDH) has made to increase 4450 hectares under organic farming cultivation in 2016.

Soil health management is a component of the National Mission for Sustainable Agriculture (NMSA) is one of the largest Missions under the National Action Plan on Climate Change (NAPCC). It promotes organic farming by using the proper ratio of macro- micronutrient management to enhance soil fertility.

Integrated nutrient management and organic farming provides the financial assistance in setting up of mechanized Fruits/vegetable markets wastes, Bio-fertilizer, Organic fertilizer testing laboratory and support research for sustainable development

Ministry of Agriculture and Farmers Welfare framed the Organic Value Chain Development for North Eastern Region (MOVCDNER). This scheme certifies the entire value chain of organic products from producer to consumer and to create a brand-building initiative for consumer preference.

Organic versus inorganic farming

According to Terry Cacek and Lind L. Langer (1986), organic farming can be distinguished from inorganic by many components. A diversity of crops can characterize organic farming; it is nature-based, environment-friendly, sustainable, whereas inorganic farming is based on using synthetic fertilizers, which is harmful to the environment. R. Prasad affirmed that the addition of organic

manure makes to supply of micronutrients and macronutrients continuously available to the crops. Moreover, it depends on the rate of their decomposition, soil temperature, and moisture content of the soil. Satyanaryana *et al.*, (2002) found that high and sustainable crop yields are obtained with the integrated application of mineral fertilizer with organic manures. According to Biau *et al.*, the mineral fertilizer applied for ten years led to higher nitrate content in the soils, which lead to an increase in leaching. Rasool *et al.*, reported that the application of inorganic fertilizers for a long time may decrease the soil bulk density and leads to an increase in the total porosity and water-holding capacity.

The compatible application of organic and inorganic fertilizers increases the nutrient occurrence and minimizes losses by transforming inorganic nitrogen into organic forms (Kramer *et al.*, 2002). In addition these vermicompost serves as a natural producer, source of plant nutrients and the modification of increased plant dry weight (Edwards CA 1995) and plant nitrogen uptake (Manivannan *et al.*, 2009). Plants height, shoot, and root weights are highest in vermicompost plots as showed by Roy *et al.*,

Another important source of nutrients in organic farming is manure. According to Clark *et al.*, (1999), Jaim and Al Kader (1998), the organic production systems are directly dependent on the application of manure imported from outside farming systems which results in the production of higher-yield crops. Maintenance of soil fertility is a great challenge for organic systems.

Nguyen and Haynes, 1995 hypothesize that yield gaps in organic farming may be more than 20% in higher system levels. Ball *et al.*, (2005) reported that organic fertilizers are responsible for the formation of soil

aggregates, which help in maintaining soil fertility. Besides manure application, the use of biofertilizers is economical, eco- friendly, more efficient, productive, and accessible as compared with chemical fertilizers (Venkataraman and Shanmugasundaram, 1992). Crop rotation is another component in farming systems as it provides the underlying principle mechanism for building healthy

nutritious soils and also controls pest attacks (Charles L. Mohler and Sue Ellen Johnson). According to Howard (1996), by crop rotation technique, plant diseases can be controlled. Tremblay *et al.*, (2011) reported that livestock manure is also a supplier of all minor nutrients as well as major nutrients like N, P, K, Ca, Mg, S, etc. which are responsible for plant growth.

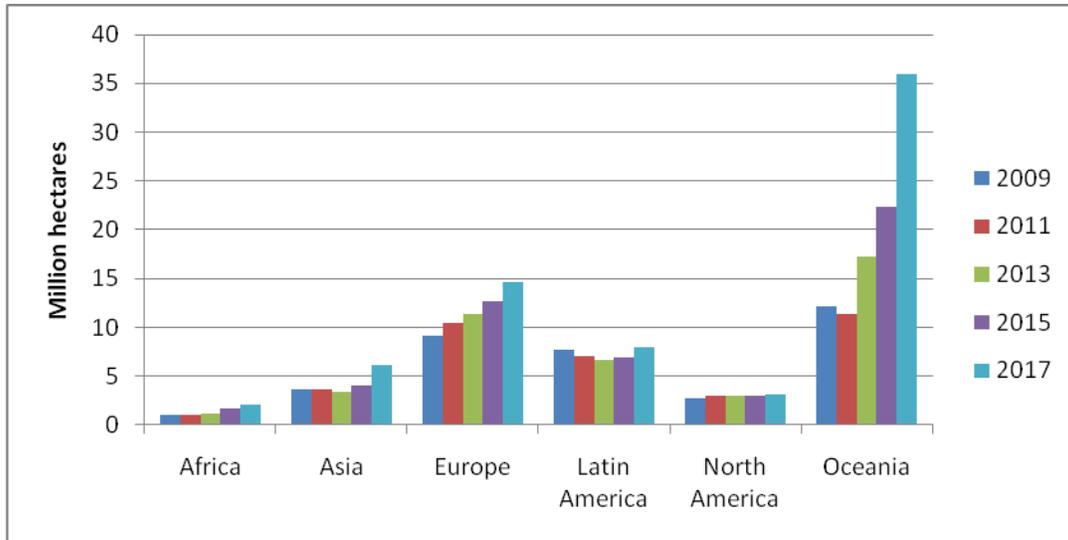


Fig.1 Growth of organic agriculture and by continent 2009-2017
Source: FIBL-IFOAM survey 2010-2019

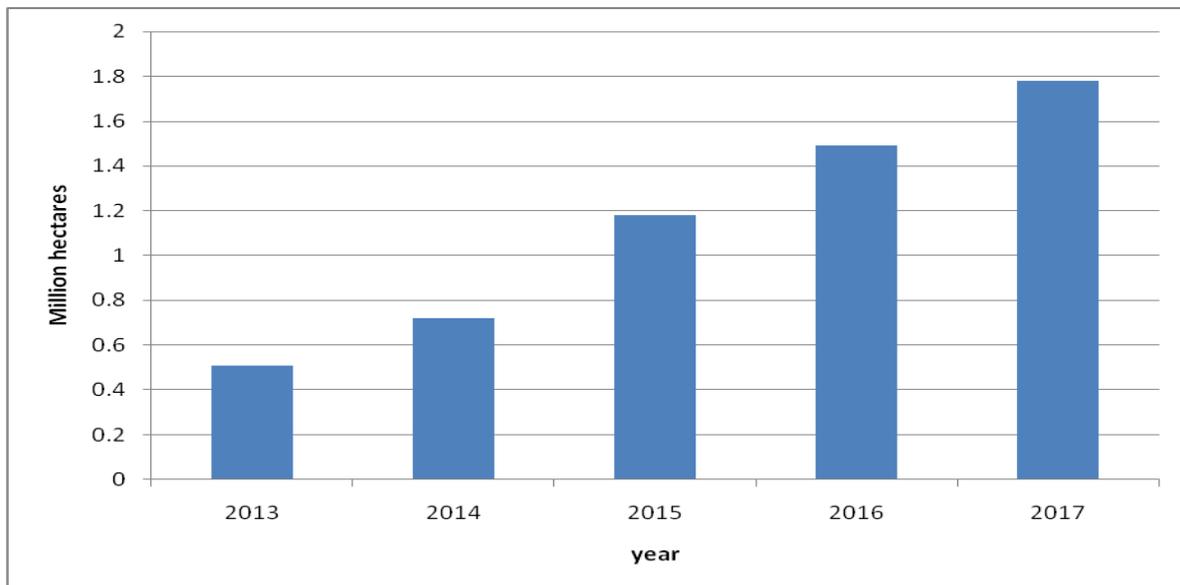


Fig.2 Growth of organic agriculture land in India
Source: FIBL-IFOAM survey 2010-2019

Many farmers are facing the problem for approval of organic farming and from lack or less number of government subsidies, schemes, and financial support for the development of organic agriculture. Encouragement, product certification, market accessibility, training programs, bio-fertilizers organic supplements, and local market for organic produce makes the farmers desire to do organic farming. This helps us to increase the organic cultivation in India besides its benefit to small farm holders.

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