

ROLE OF ORGANIC FARMING IN INDIAN AGRICULTURE***AKHILESH KULHADE¹, AROOP D. GUPTA¹, ANUPAM MISHRA²
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ABSTRACT

Organic crop production programs started from Madhya Pradesh of India. Mango, Bananas, Pineapple, Papaya organic fruits grow in Maharashtra and Madhya Pradesh States. Wheat, Maize and Sorghum organic crops grow in Haryana, Punjab, Madhya Pradesh, Uttar Pradesh and Maharashtra States. Oilseeds organic crops grow in only Madhya Pradesh. Cotton organic crops grow in Gujarat and Madhya Pradesh States. The area of organic crop production program is 29200 hac in Seoni District of Madhya Pradesh.

Besides, demand for organic food is steadily increasing globally at an annual average growth rate of about 25 percent. Growing at a steady annual rate of about 40 percent, the total turnover of organic farming (including exports) in India is likely to be worth Rs 10,000 crore from current levels of about Rs 2,500 crore. Nearly 4.5 million hectares area is currently under certified organic farms, points out the ASSOCHAM study.

Although, organic farming is picking up pace in India but the sector has been jostling with lack of awareness, knowledge and confidence about organic farming, food products among both farmers and consumers. Organic agriculture should be recognized and integrated in main policies of the central government like those on agriculture, food, health and environment.

Figure : 00

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KEY WORDS: Awareness, Concept, Information of organic farming, , Organic logo of India, Principles.

Introduction

India is an Agrarian country with around 60% of its people directly or indirectly depend upon agriculture. In ancient time the practice of agriculture was considered to be a greatest service to the society and this practice was inter-twined in their tradition and culture².

Since organic farming techniques have the potential to improve soil fertility, soil structure and soil moisture retention capacity. Organic management provides solutions to the problems associated with degradation of drylands and desertification³.

The progress in organic agriculture development and the need for further promoting it has been summed up very well by the 42nd Report

of the Standing Committee on Agriculture of 14th Lok Sabha. In its recommendation (No. 12), the committee report states, "The Committee feels that R&D in Organic farming is an option that will make agriculture in India more profitable as organic farming is more environmentally sustainable. Hence, it has to be included as a priority area in agriculture. Implications of organic farming on national food security may also be analysed".

The study revealed that organic farming, in spite of the reduction in crop productivity by 9.2%, provided higher net profit to farmers by 22.0% compared to conventional farming. However, there was an overall improvement in soil quality in terms of various parameters, viz. physical, chemical, biological properties, availability of macro and micro-nutrients, indicating an enhanced soil health

and sustainability of crop production in organic farming systems.

Different manures, used for supplying plant nutrients in organic farms include farm yard manure (FYM), Vermi-compost, compost, green manure, bio-fertilizers, neem cake, fish meal, biogas slurry, bone meal, predd mud, biodynamic preparation, Jeeva amruit, Panchgavya, effective microorganisms (EM), minerals like gypsum, rock phosphate, etc. Different plant protection materials used in organic farming include neem oil, fermented butter milk, Jeevamrit, Panchgavya, cow urine, plant extracts like *Aloe vera*, *Datura*, *Pongamia*, *Cassia*, garlic, ginger, chilly and bio-agents like *Trichodarma*, *Pseudomonas*, *Verticillium*, HNPV and Bt spray.

This paper focuses on the growth of organic agriculture all over the world and the development of various bodies to set up and maintain standards of organic agriculture.

Organic crop production programs started from MP of India. As like Mango, Bananas, Pineapple, Papaya organic fruits grow in MH and MP States of India. Wheat, Maize and Sorghum organic crops grow in Haryana, Punjab, MP, UP and MH States of India. Oilseeds organic crops grow in only MP States of India. Cotton organic crops grow in Gujrat and MP State of India⁷. The area of organic crop production program was 29200 hac. during 2014 (include all seasons) in Seoni District of MP of India. (*Farmer Welfare & Agriculture Department, Seoni MP, 2015*)

Key data/indicators on organic agriculture worldwide 2012

- ∇ 164 countries have data on organic agriculture.
- ∇ 37.5 million hectares of agricultural land are organic (including conversion areas).
- ∇ 10 countries have more than ten percent organic agricultural land, and 17 countries have between 5 and 10 percent organic agricultural land.
- ∇ There are more than 31 million hectares of further, non-agricultural areas.
- ∇ 1.9 million Producers were reported.

Organic agricultural land by region 2012

- ∇ Currently 37.5 million hectares are under organic agricultural management (end of 2012 for most data).

- ∇ The distribution of the organic agricultural land is as follows: Oceania (12.2 million hectares);
- ∇ Europe (11.2 million hectares);
- ∇ Latin America (6.8 million hectares),
- ∇ Asia (3.2 million hectares),
- ∇ North America (3.0 million hectares), and
- ∇ Africa (1.1 million hectares).

Oceania has almost one-third of the global organic agricultural land, but its relative importance is decreasing. Europe, a region that has had a very constant growth of organic land over the years, has more than 30 percent of the world's organic agricultural land. Latin America has 18 percent of the world's organic land. In addition to the agricultural land, there are 31.5 million hectares of non-agricultural areas, mainly wild-collection.

The countries with the most organic agricultural land 2012

Australia is the country with the most organic agricultural land, 97 percent of which is extensive grazing area. Argentina is second, followed by the United States in third place. The ten countries with the most organically managed agricultural land have a combined total of 26.3 million hecs., constituting almost seventy percent of the world's organic agricultural land.

Currently 0.9 percent of the agricultural land of the countries covered by the survey is organic. By region, the highest shares of the total agricultural land are in Oceania (2.9 percent) and in Europe (2.3 percent). There were more than 1.9 million producers in 2012. Thirty-six percent of the world's organic producers are in Asia, followed by Africa (30 percent) and Europe (17 percent). The countries with the most producers are India (60,00,000), Uganda (1,89,610) and Mexico (1,69,707).

The Associated Chambers of Commerce and Industry of India (ASSOCHAM) study titled '**Madhya Pradesh: Inching towards Organic Farming**' was released by national secretary general of ASSOCHAM in Bhopal¹¹.

At least 45 percent of cultivable land can be converted into organic farms, in next five years, thereby converting seven percent cultivable land annually into organic farming. The state government must pay emphasis on organic farming in their agriculture policy to overcome constraints like unproductive plantation, low crop productivity, poor

crop management, high degree of pests and diseases. It is imperative to adopt modern practices, technologies and scientific management in agri sector.” Considering rising health consciousness and growing awareness among people, the demand for organic food products is likely to increase rapidly, thus ASSOCHAM calls for setting up organic farming clusters across the state. With about 45 percent of total area under certified organic farming in India, MP has the potential to take India’s global share in organic exports from less than one percent to about 2.5 percent. Growing at a robust annual growth rate of over five billion dollars, the global organic market currently stands at about 65 billion dollars. The organic agriculture is practiced in over 150 countries with a total area of 35 million hectares in about 14 million organic farms and accounts for less than one percent of world’s total agricultural land.

Besides, demand for organic food is steadily increasing globally at an annual average growth rate of about 25 per cent. Growing at a steady annual rate of about 40 percent, the total turnover of organic farming (including exports) in India is likely to be worth Rs 10,000 crore by 2015 from current levels of about Rs 2,500 crore. Nearly 4.5 million hectares area is currently under certified organic farms, points out the ASSOCHAM study. Besides, tie-ups with modern retail chains and IT firms will also give a boost to the sector. Demand for organic food alone in India is about Rs 600 crore. Currently, India exports about 86 products worth over 100 million dollars to the world certified organic market registering a growth of over 30 per cent.

OBJECTIVES

To study the concepts, knowledge, information and awareness of organic farming.

Definition of Organic Farming

Agriculture is the most important livelihood strategy in India, with two thirds of the country’s workforce depending on farming. Organic farming system in India is not new and is being followed from ancient time. Definition given by two International organizations also verify this concept. These definitions are-

1. Organic farming is a holistic management system, which enhances agro-ecosystem health, utilizing both traditional & scientific knowledge. Organic agriculture systems rely on ecosystem management rather than

external agricultural inputs⁶.

2. Organic agriculture is an environmentally and socially sensitive food supply system. The primary goal of organic agriculture is to optimize the health and productivity of independent communities of soil life, plants, animals and people⁴.

Concept of Organic Farming

The concept of organic farming is not clear to many concerns. Many people think that traditional agriculture, sustainable agriculture, Jaivik Krishi etc, are organic farming. Some people are of the idea that the use of organic manures and natural methods of plant protection instead of using synthetic fertilizers/pesticides are organic farming. But this is not true. The international food standards Codex Alimentarius, in association with the International Federation of Organic Agriculture Movements (IFOAM) and the Food and Agriculture Organization of the United Nations (FAO), state, *“Organic agriculture is a holistic production management system which promotes and enhances agro-ecosystem health, including biodiversity, biological cycles and soil biological activity. It emphasizes the use of management practices in preference to the use of off-farm inputs, taking into account that regional conditions require locally adapted systems. This is accomplished by using, where possible, agronomic, biological, and mechanical methods, as opposed to using synthetic materials, to fulfill any specific function with the system.”*³

History of Organic Farming

Although the term ‘organic farming’ is getting popularity in recent times, but it was initiated 10000 years back when ancient farmers started cultivation depending on natural sources only. There is brief mention of several organic inputs in our ancient literatures like Rigveda, Ramayana, Mahabharata, Kautilya Arthasashthra etc. In fact, organic agriculture has its roots in traditional agricultural practices that evolved in countless villages and farming communities over the millennium.

Historical perspective of organic farming: Ancient period

Oldest practice: 10000 years old, dating back to ‘Neolithic age, practiced by ancient civilization like Mesopotamia, Hwang Ho basin etc.

Ramayana: (All dead things - rotting corpse or stinking garbage returned to earth are

transformed into wholesome things that nourish life. Such is the alchemy of mother earth – as interpreted by C. Rajagopalachari).

Mahabharata (5500 BC): Mention of *Kamadhenu*, the celestial cow and its role on human life and soil fertility.

Kautilya Arthashastra (300 BC): Mentioned several manures like oil cake, excreta of animals.

Brihad-Sanhita (by Varahmihir): Described how to choose manures for different crops and the methods of manuring.

Rig Veda (2500-1500 BC): Mention of organic manure in Ria Veda 1, 161, 10,2500-1500 BC, is Green Manure in Atharva Veda II 8.3, (1000 BC). In Sukra (IV, V, 94, 107-112) it is stated that to cause healthy growth the plant should be nourished by dungs of goat, sheep, cow and water. A reference of manure is also made in *Vrksayurveda* by surpala (manuscript, oxford, No 324 B, Six, 107-164)

Holy Quran (590 AD): At least one third of what you take out from soils must be returned to it implying recycling or post-harvest residue.

Major milestones in the area of organic farming. The concept of organic farming originated out of the organic movement that existed in the 1930s and 1940s. Key milestones on organic farming in current period

- ✓ Sir Albert Howard (1900-1947) father of modern organic Agriculture, developed organic composting process (mycorrhizal fungi) at Pusa, Samastipur, India and published document "An Agriculture Testament".
- ✓ Rudolph Steiner (1922) a German spiritual Philosopher built biodynamic farm in Germany.
- ✓ J.I. Rodel (1950), USA popularized the term sustainable agriculture and method of organic arowina.
- ✓ IFOAM Establishment of 'International Federation of Organic Agriculture Movement', in 1972.
- ✓ One Straw Revolution Release of the book by Masanobu Fukoka (1975), an eminent microbiologist in Japan.
- ✓ EU Reaulation on Organic Food, 1991
- ✓ Codex guideline on organic standard, 1999.

The term *organic farming* was coined by Lord Northbourne in his book *Look to the Land* (written

in 1939, published 1940). From his conception of "The farm as organism," he described a holistic, ecologically balanced approach to farming.

In 1939, influenced by Sir Albert Howard's work, Lady Eve Balfour launched the Haughley Experiment on farmland in England. It was the first scientific, side-by-side comparison of organic and conventional farming. Four years later, she published *The Living Soil*, based on the initial findings of the Haughley Experiment. Widely read, it led to the formation of a key international organic advocacy group, the Soil Association In Japan, Masanobu Fukuoka, a microbiologist working in soil science and plant pathology, began to doubt the modern agricultural movement. In 1937, he quit his job as a research scientist, returned to his family's farm in 1938, and devoted the next 60 years to developing a radical no-till organic method for growing grain and many other crops, now known as Nature Farming (Natural Farming), 'do-nothing' farming or Fukuoka farming.

According to IFOAM Principles of Organic Agriculture

1. Principle of Health

Organic agriculture is intended to sustain and enhance the health of soil, plant, animal, and human beings as one and indivisible. In view of this, it constrains the use of fertilizers, pesticides, animal drugs and food additives that may have adverse health effects.

2. Principle of Ecology

Organic agriculture should be based on living ecological systems and cycles, work with them, emulate them, and help sustain them. Organic agriculture should attain ecological balance through the design of such farming systems which serve to achieve the above objectives.

3. Principle of Fairness

Organic agriculture should be built on the relationships that ensure fairness with regard to the common environment and life opportunities. Fairness is characterized by equity, respect, justice, and stewardship of the shared world, both among people and their relations to other beings. Ensure fairness to all levels and to all parties: farmers, workers, processors, distributors, traders, and consumers. The aim is to help provide everyone involved with a good quality of life, and contribute to food sovereignty and reduction of poverty.

4. Principle of Care

Organic agriculture should be managed in a precautionary and responsible manner to protect the health and well-being of current and future generations and the environment. Practitioners of organic agriculture can enhance efficiency and increase productivity, but this should not be at the cost/risk of jeopardizing health and well-being. Source : IFOAM Principles of Organic Agriculture⁶ (2005) :(www.ifoam.org)

Advantages of Organic Farming in Indian Rural Economy

- ∇ Organic fertilizers are completely safe and do not produce harmful chemical compounds
- ∇ The consumption of chemical fertilizers in comparison to organic fertilizers is always more, especially in unused cultivable lands.
- ∇ Moreover, chemical fertilizer needs huge quantities of water to activate its molecules whereas, organic fertilizers do not need such conditions.
- ∇ Further, chemical fertilizers almost always have some harmful effects either on the farm produce or on the environment.
- ∇ Furthermore, it can also produce harmful chemical compound in combination with chemical pesticides, used to ward-off harmful pests.

Socio-economic opportunity in organic farming¹²

- ∇ Contributes to preservation of biodiversity.
- ∇ Produces healthy food.
- ∇ Ensures jobs in agriculture, food processing and marketing.
- ∇ Improves health of soil
- ∇ Low water consumption
- ∇ Low input cost
- ∇ High produce cost (Improve economic status)
- ∇ High demand due to social awareness
- ∇ Huge export potential
- ∇ Promotion of sustainable agriculture for small farmers.

Different Benefits of Organic Farming or reason for choosing organic farming

- ∇ Organic farming proves to be more profitable than the age-old traditional farming methods.

∇ It has been found that organic farming reduces the production cost by about 25 - 30%, as it does not involve the use of synthetic fertilizers and pesticides, which thus makes organic farming very cost-effective.

∇ This type of farming leads to a less toxic environment as far as the air, water and soil are concerned.

∇ Soil is the most important component in farming and organic farming preserves the soil by reducing soil erosion up to a large extent.

∇ Organic farming also enables the farmers to use the soil for a longer period of time to grow crops, as soil fertility is maintained for a long time in such a case.

∇ Organic farming has a positive effect on the ecosystem, as it proves vital in supporting the survival of wildlife in the lowlands. It even provides safe pasture lands for grazing.

∇ This kind of farming is not only beneficial to the farmers, but it also has proved useful for the dairy industry. Cattle grazing on organic farmlands has been found to be less prone to diseases and they also yield more milk. These are definitely good signs for a consumer of these dairy products from a health perspective, and for a dairy organization from the profit perspective.

∇ Organic farming eliminates the chances that are there of the fast production of food through artificial means.

∇ Products or foodstuffs produced from organic farming neither contain any sort of artificial flavors or preservatives, nor do they contain any harmful chemicals.

∇ The original nutritional content of food is preserved due to the absence of synthetic fertilizers and pesticides.

∇ Organic products moreover are tastier than the products yielded from traditional farming.

Consumption of products obtained from organic farming minimizes the risks of physical ailments such as heart attacks, cancer, and ever strokes. Scientific studies have proven that organic foods are healthier than the inorganic ones.

Demerits of Organic Farming

The first and foremost demerit is that all

organic products are expensive. Common people cannot afford organic food and clothes made from organic wool and cotton. It is labor intensive, compared to mechanical agriculture. An organic farmer has to observe his crops regularly for timely pest and weed control. To become an organic farmer, it requires immense patience and considerable skills. Organic farmers do not use chemical pesticides to get rid of pests. Instead, they have to be always on a lookout for weeds, insects and parasites on the farm. They do not have off-shelf formulas for fixing up the various farming problems they encounter.

The transition period of the conversion of a conventional farmer to an organic farmer is a learning period and he tends to face a lot of difficulties. During conversion, the time period to develop a healthy ecosystem in a conventional farm is long and time-consuming. During this period, the new organic farmers would require a lot of help and tips from the seasoned organic farmers.

Traditional organic farming practices of farmers

Source : Ms. Akali Sema (APO paper)

Traditional organic farming practices of farmers in the North East Indian Himalayas

*Jhum/Shifting cultivation of the entire North East region

- ✓ Zabo system of farming of Nagaland
- ✓ Alder-based farming system of Nagaland
- ✓ Rice-based farming system– in Apatani plateau of Arunachal
- ✓ Large cardamom-based agro-forestry system of Sikkim
- ✓ Pani kheti system of Sikkim, Nagaland and Arunachal
- ✓ Nevaro-based silvi-pastoral system of Sikkim
- ✓ Agro–horti–silvi-pastoral system of the entire region
- ✓ Growing of same crops in the same area is avoided
- ✓ Contour bunding and growing of crops along contour lines
- ✓ Intercropping or mixed cropping with leguminous crops

Certification¹²

Certified organic products including all varieties of food products namely basmati rice,

pulses, honey, tea, spices, coffee, oil seeds, fruits, processed food, cereals, herbal medicines and their value added products are produced in India. Apart from edible sector, organic cotton fiber, garments, cosmetics, functional food products and body care products are also produced. Banana, pomegranates, pineapple, grapes, amaranth, ginger, large cardamom, sweet fennel, peanut, onion, sugar/jaggery are other commodities which will emerge as significant organic commodities produced in India in the next two to three years.

CERTIFICATION MARK of ORGANIC LOGO concept of India

A trademark – “India Organic” will be granted on the basis of compliance with the National Standards for Organic Production (NSOP). Communicating the genuineness as well as the origin of the product, this trademark is owned by the Government of India. Only such exporters, manufacturers and processors whose products are duly certified by the accredited inspection and certification agencies, will be granted the license to use of the logo which would be governed by a set of regulations.

CONCEPT OF ORGANIC LOGO

Symbolizing the rhythm of cosmic and earth forces represented by the blue and brown waves of force and energy, ‘India Organic’ logo celebrates the essence of nature. These forces work in harmony upon the earth’s environment and this rhythm is reinforced and supported by the green plant growth. The colors used have a special significance in the logo concept. The cosmic force in blue symbolizes universal purity. Richness of soil, nourished with natural ingredients in organic farming, is symbolized by the earth forces in golden brown. The plant in green uses the color of nature and natural products untouched by chemicals. The blue background is symbolic of earth’s environment that is congenial for life to thrive in and is also free of pollution and harmful chemicals. India Organic etched over the surface authenticates the carrier as “Organic” and also establishes the Indian connection for all the carriers of the mark. Beautifully synthesizing all the elements of our environment, the logo also communicates total adherence to the National Organic Standards.

Organic food products exported from India include the following:

- ✓ Organic Cereals: Wheat, rice, maize or corn,

- v Organic Pulses: Red gram, black gram,
- v Organic Fruits: Banana, mango, orange, pineapple, passion fruit, cashew nut, walnut,
- v Organic Oil Seeds and Oils: Soybean, sunflower, mustard, cotton seed, groundnut, castor,
- v Organic Vegetables: Brinjal, garlic, potato, tomato, onion,
- v Organic Herbs and Spices: Chili, peppermint, cardamom, turmeric, black pepper, white pepper, amla, tamarind, ginger, vanilla, clove, cinnamon, nutmeg, mace,
- v Others: Jaggery, sugar, tea, coffee, cotton, textiles.

The Standard Organisation of Organic Farming

1. **IFOAM** : Established in 1972. Head quarter in Germany. Umbrella organization for organic Agriculture Association. Developed international basic standards of organic agriculture. Established IFOAM accreditation programme (1992) to accredit certifying bodies. Set up International Organic Accreditation Service (IOAS) in July 2001.
2. **CODEX** : Codex Alimentarius Commission – A joint FAO/WHO. Inter government body. Established in 1962. Produced a set of guidelines for organic production.
3. **EU regulation** : Laid out a basic regulation for European Union’s organic standards in Council regulation NO.2092/91 (June 1991). Regulations give guidelines for the production of Organic crops in the European Community.
4. **Demeter** : Demeter International is a worldwide network of 19 International certification bodies in Africa, Australia, Europe. Developed guideline for biodynamic preparation.
5. **JAS** : A set of guidelines ‘Japan Agricultural Standards’ for organic production.

Future Strategy of India on organic farming

India needs to define a long-term vision and growth strategies for organic agriculture in India. Further, a variety of concerns making different countries promote organic agriculture for different reasons help us understand the priority concerns of Indian farmers with respect to the solutions organic agriculture can offer to Indian farmers. The international developments in organic and agricultural scenario within the country indicate that

the organic vision of India should build on the following pillars⁹.

- i. Organic agriculture becomes a low-cost, sustainable option of farming in the country, particularly by the small farmers in rainfed areas and helps improve their food and income security.
- ii. Organic agriculture gets mainstreamed and helps achieve ecological and economic sustainability of Indian agriculture in general, *i.e.*, clean water, environment and to preserve biodiversity.
- iii. Organic agriculture helps produce and supply adequate safe and nutritious food to the producers (farmers of India) and consumers of the nation.
- iv. Organic becomes a foreign exchange earner for the country and that India is able to take at least 3% share of global organic market. It will lead to organic agriculture becoming an agribusiness / entrepreneurship opportunity that will provide employment opportunities down the supply chain.

Adoption of organic farming will bring down the expenditure on input costs and will fetch premium pricing up to 50 percent higher than normal price and about 100 percent in retail market,” according to the ASSOCHAM study. “Thus, it can increase net per capita income of a farmer in the state by a whopping 250 percent *i.e.* from current level of about Rs 4,200 to over Rs 10,600 per month in next five years thereby, arresting the migration of people from Madhya Pradesh to other states in search of jobs¹¹.

Conclusion

To conclude, the paper focused on the legal aspects of organic agriculture that will capture and summaries the practical lessons agriculture legislation. It is not an easy task to draft national legislation to govern and maintain minimum standard in organic agriculture. From the view point of India, encourage for organic agriculture by means of subsidies, *etc* by the government is much needed. Besides that, knowledge of the adverse effect of chemical based agriculture and awareness as to the socio-economic benefits of organic agriculture is the need of the day in India.

Although, organic farming is picking up pace in India but the sector has been jostling with lack of awareness, knowledge and confidence about

organic farming, food products among both farmers and consumers. Organic agriculture should be recognized and integrated in main policies of the central government like those on agriculture, food,

health and environment. This will ensure that all needs of organic sector are properly addressed and considered in government programmes and budgetary allocations.

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