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Progress of organic farming in India: A critical analysis

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Abstract

Awareness of health and environmental issues is growing fast globally in recent years. Sustainability in production has become the prime concern in agriculture development. The organic method of farming can complement agricultural productivity by improving food security, food hygiene and trade in food along environment safe for the present and future generation. Organic farming works in harmony with nature rather than against it. This involves using techniques to achieve good crop yields without harming the natural environment or the people who live and work in it. Organic farming does not mean going 'back' to traditional methods. Many of the farming methods used in the past are still useful today. It is an integrated farming system that strives for sustainability by enhancing soil fertility, water management and biological diversity. According to the Food and Agriculture Organization (FAO), sustainable agriculture is the successful management of resources to satisfy the changing human needs while maintaining or enhancing the quality of environment and conserving natural resources. However, organic farming is based on various laws and certification programmes, which prohibit the use of almost all synthetic inputs and the central theme of this method is the health of soil. Application of technology, particularly the use of chemical fertilizers and pesticides all around us has persuaded people to think aloud. This paper takes a closer look into current status of organic farming in India. The present study is relied on secondary data for its analysis. Simple statistical tools like compound growth, percentage, growth, averages were used.

Keywords: Conventional farming, organic agriculture, sustainability, challenges, development

1. Introduction

Organic farming ^[1] aims for human welfare without harming the environment and follows the principles of health, ecology, fairness and care for all including soil. The modern concept of organic farming combines the tradition, innovation and science. Although, history states that the movement for organic way of life recognized in 1905, it could gain ground after realizing the ill effects of modern agriculture in the late 1990's. In 1905, the British botanist Sir Albert Howard, often referred to as the father of modern organic agriculture, documented traditional Indian farming practices, and came to regard them as superior to conventional agriculture science. Rising health care costs, unemployment, an economy struggling to recover from the ongoing recession, environmental degradation and the need to address climate change are among the most serious problems facing the India as well as Karnataka today. Organic farming has the potential to provide benefits in terms of environmental protection, conservation of non-renewable resources and improved food quality. India is bestowed with lot of potential to produce all varieties of organic products due to its diverse agro-climatic regions. In several parts of the country, the inherited tradition of organic farming is an added advantage. This holds promise for the organic producers to tap the market which is growing steadily in the domestic market related to the export market. At presently, of the total cultivated area of the world about nine per cent of land area cultivating in organic manner.

¹Organic farming is a production system which avoids or largely excludes the use of synthetically compounded fertilizers, pesticides, growth regulators and livestock feed additives. To the maximum extent feasible it relies upon crop rotations, crop residues, animal wastes, mechanical cultivation, mineral bearing rocks and aspects of biological pest control to maintain soil productivity and to supply plant nutrients and to control insects, weeds and other pests (Lampkin, 1990).

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Countries like China (1.9 mh) and India (1mh) are named as leading countries of organic farming across the world. The Government of India has implemented the National Programme for Organic Production (NPOP) in the year 2001. The national programme involves the accreditation programme for certification agencies, norms for organic production, promotion of organic farming etc. States like; Uttaranchal, Karnataka, Madhya Pradesh, Maharashtra, Gujarat, Rajasthan, Tamil Nadu, Kerala, Nagaland, Mizoram, Sikkim have been promoting organic farming. Sikkim has become India's first fully organic state by implementing organic practices on around 75,000 hectares of agricultural land. Parshottam Rupala, the Union Minister of State for Agriculture & Farmers Welfare, informed that the government is increasingly focusing on organic farming to boost production of nutritionally rich agriculture produce.

2. Review of Literature

Here, the earlier studies reviewed have been presented as follows.

Modern agricultural farming practices, along with irrational use of chemical inputs over the past four decades have resulted in not only loss of natural habitat balance and soil health but have also caused many hazards like soil erosion, decreased groundwater level, soil salinization, pollution due to fertilizers and pesticides, genetic erosion, ill effects on environment, reduced food quality and increased the cost of cultivation, rendering the farmer poorer year by year (Annual report 2016-17). Farmers do not find agriculture a viable proposition anymore and in fact, a large number of farmers have committed suicides (Rajendra Prasad, 2006) [11]. Increasing awareness towards health and environmental issues associated with the intensive use of chemical inputs has led to alternate forms of agriculture. Organic farming is one among the production methods that are supportive of the environment (Kavitha et al., 2013) [14].

India's rank in terms of World's Organic Agricultural land was 15 as per 2013 data. The total area under organic certification is 5.71 million Hectare (2015-16). This includes 26% cultivable area with 1.49 million Hectare and rest 74% (4.22 million Hectare) forest and wild area for collection of minor forest produces (APEDA, 2015) [13]. Organic farming systems have attracted increasing attention over the last one decade because they are perceived to offer some solutions to the problems currently besetting the agricultural sector. Organic farming has the potential to provide benefits in terms of environmental protection, conservation of non-renewable resources and improved food quality (Worthington, 2001; Haas et al., 2005) [18]. The quality of natural resources should be maintained and the vitality of the entire agro ecosystem- humans, animals and crops to micro organisms- should be enhanced in a sustainable agricultural system. The emphasis is on the use of renewable resources where there is minimal loss of nutrients, biomass and energy. Waste is nil or minimal. (Reijntjes C, et al, 1992) [4].

Singh and others (2001) [6], recording the experiments on rice-chick pea cropping sequence using organic manure, found the yields substantially higher compared to the control group. Similar results were obtained for rice, ginger, sunflower, soybean and sesame. Mahapatra Richard (1998) [9] found that after three years of switching over to natural cultivation, the soil was still recovering from the after effects of chemical farming. When the soil regained its

health, production increased and the use of inputs decreased. The farm, which was yielding 200 to 250 coconuts per tree, gave 350 to 400 per annum.

3. The Paper

The present study is analytical in nature. The prime objective of the study is to analyze the status of Organic farming in India. Issues relating to the approaches of organic farming, organic farming and sustainable development, international marketing of organic goods, Indian experience of organic farming, and challenges of organic farming in India have covered under the study. The present study is purely based on secondary data for its analysis. Data have been gathered from articles, books, journals, periodicals, conference proceedings, reports, survey reports, and department publications and so on.

4. Organic farming and Sustainable Development

Organic farming is one of the several approaches found to meet the objectives of sustainable agriculture and which is thought of as the best alternative to avoid the ill effects of chemical farming. Adverse effects of modern agricultural practices not only on the farm but also on the health of all living things and thus on the environment have been well documented all over the world. Application of technology, particularly in terms of the use of chemical fertilizers and pesticides all around us has persuaded people to think aloud. Their negative effects on the environment are manifested through soil erosion, water shortages, soil contamination, genetic erosion, etc.

5. Agriculture has been at the centre of the sustainability issue for two main reasons

1. Agricultural systems occupy large areas of land – far more land than any other industry with the possible exception of forestry. Therefore, what occurs within agriculture can often have major environmental effects.
2. The product of agriculture is often food, and we all eat! Agriculture is therefore one of the foundations of human society. (Lele, 1991)

6. Approach to organic farming

Organic farming is an agriculture that is at the center of the three economic [2], social [3] and environmental pillars [4] of sustainable development. Organic farming improves the structure and fertility of the soil through balanced choice of crops and adoption of diversified crop rotations. Biological processes are strengthened without resorting to chemical remedies such as use of synthetic fertilizers, pesticides, fungicides, weedicides and hormones. In this farming system, control of pest, diseases and weeds is primarily preventive and if required by mechanical means and/ or by applying organic products, which will not adversely affect the environment. Genetically modified organisms may not normally be acceptable because of the manipulations made in their original genetic make-up. In organic agriculture, inputs

² Economic Pillar: Integrating organic agriculture into the agricultural sector will provide an opportunity to join the international biological and fair trade movement, protecting producers from fraud, improving living conditions and providing healthy food.

⁴ Organic farming is a mode of production based notably on the non-use of synthetic chemicals, recycling of organic matter, crop rotation and biological control. In Environmental pillar, more importance has to be given for Water, Emission of Greenhouse gas.

or practices like pest and disease tolerant/ resistant varieties, organic matter of various kinds, nitrogen fixing bacteria and fungi, bacteria. Phosphorus stabilizing.

Vermin—culture, mulching, naturally available parasites and predators and botanicals against pests and diseases, crop rotation including cultivation of legumes, multiple cropping, intercropping, mixed farming, fallowing, etc., are used or adopted. In brief, organic agriculture merges traditional and respectable views on nature with modern agriculture.

7. World trade

Demand for organic spices varies considerably from country to country and in the kind of spices in a particular country. At present only a few European countries, USA, Canada Australia and Japan are importing organic spices. However, more countries may look for organic spices because of the increasing awareness for the safety of food consumed and environmental protection. Germany has the highest demand for organic spices. Other European countries which import organic spices comparatively in a notable way are the Netherlands. The UK, France, Switzerland and Sweden. The popular organic spices imported by them are black pepper, white pepper, ginger, turmeric, clove, nutmeg, mace, cardamom, Chilli, coriander, fennel, etc. The world import of various organic spices together during 1999 was around 200MT and during 2000 around 300MT as assessed from important buyers abroad. Thus it only niche market in a very few countries at present. Of the organic spices traded, black pepper has maximum demand followed by ginger, white pepper, nutmeg and clove.

8. Indian experience

Government of India has set up the general organic standards for production and processing and procedures for accreditation of inspection and certification agencies during 2001. It has also identified the organizations of the Government, which would provide accreditation to these agencies. However, inspection and certification agencies of Indian origin are only at the formative stage. Such one agency is INDOCERT promoted by a few non-governmental organizations and enterprising farmers with the support of the Swiss Government. At present a few European agencies, which had opened offices in India earlier have secured accreditation for inspection and certification in the country.

Traditionally, Indian farmers followed organic cultivation methods until the middle of the last century, as they had no other choice. Since 1960s many chemical inputs for increasing agricultural yields have become available both from domestic production and import, some of the chemicals imported and used at the beginning particularly for plant protection were highly dangerous for human health

and they left poisonous residues in the soil. The green revolution initiated by importing dwarf and fertilizer responsive Wheat and rice varieties led to production programmes using various agro chemicals profusely in the urge to enhance productivity.

India has established a name in supplying quality organic spices to Europe and USA. The pioneering work in this regard was done by the Peer made Development Society with the support of the Spices Board of India. There are few other non-governmental organizations for promoting organic production of herbs in Nilgiri District, black pepper in Wynad District and turmeric and ginger in Phulbani District in India. Some non-governmental organizations in the Northeast are also getting involved in organic spice production.

9. Status of Organic Farming

Demand for organic products, especially in developed countries, has been increasing. Globally, organic agriculture is practiced in 162 countries and 37 m ha of land are managed organically by 1.8 million farm households. The global sale of organic food and drink reached 62.9 billion US dollars in 2011. The regions with the largest areas of organically managed agricultural land are Oceania (12.1 million hectares or 33 percent of the global organic farmland), Europe (10.6 million hectares or 29 percent of the global organic farmland) and Latin America (6.8 million hectares or 23 percent). On a global level, the organic agricultural land area increased by three percent compared with 2010. The countries with the most organic agricultural land are Australia (12 million hectares), Argentina (3.8 million hectares) and the United States (1.9 million hectares).

In Asia, land under organic management reached 3.6 million hectares for 2009 up from just under 3.4 million hectares reported for 2008 and under 2.9 million hectares for 2007. The expansion of over 0.2 million hectares, a growth rate of close to 6 per cent comes on top of a 17 per cent growth from 2007 to 2008. It maintains an upward trend albeit a slower pace of conversion. The main contributor of the expansion of cultivated acreage is India. With the increasing awareness about the safety and quality of foods, long term sustainability of the system and accumulating evidences of being equally productive, the organic farming has emerged as an alternative system of farming which not only addresses the quality and sustainability concerns, but also ensures a profitable livelihood option. Cultivated area under certified organic farming has grown almost 17 fold in last one decade (42,000 ha in 2003-04 to 7.23 lakh ha in 2013-14). The state wise area under organic farming during 2013-14 is given in Table 1.

Table 1: Selected States' Area under Organic Certification (2012-13 & 2016-17)

State/UT (01)	2012-13 (02)	2016-17 (03)	% Growth over 2012-13 (04)
Andhra Pradesh	5909	17683 (1.22)	199.25
Assam	2299	23870 (1.65)	938.27
Chhattisgarh	1887	12712 (0.88)	573.66
Goa	8290	15762 (1.09)	90.13
Gujarat	45275	64241 (4.45)	41.90
Himachal Pradesh	3965	12376 (0.85)	212.13
Jammu & Kashmir	5121	22608 (1.56)	341.47
Jharkhand	254	22608 (1.56)	8800.78

Karnataka	27191	81089 (5.61)	198.20
Kerala	10568	24812 (1.71)	134.78
Madhya Pradesh	144239	464859 (32.20)	222.28
Maharashtra	66504	224007 (15.51)	236.83
Odisha	18186	92190 (6.38)	406.92
Rajasthan	38289	151609 (10.50)	295.95
Sikkim	43107	75218 (5.20)	74.49
Uttar Pradesh	32889	56249 (3.90)	71.00
Total selected States	453973 (90.00)	1361893 (94.34)	200.00
Others	50466 (10.00)	81645 (5.66)	61.78
Grand Total	504439	1443538	186.16

Source: EnviStats-India 2019, Volume-I: Environment Statistics, government of India, Ministry of Statistics and Programme Implementation, Central Statistics Office (Social Statistics Division) www.mospi.gov.in. Statement

It can be viewed from the table-01 that certified organic farm land in India has increased from 504439 hectares in 2012 to 1443538 hectares in 2016-17 which is 186.16 per cent growth in this respect. It is evidenced from the table that of the total certified organic farm land highest of about 32.20, 15.51 and 10.50 per cent of land was found registered in the state of Madhya Pradesh, Maharashtra and Rajasthan respectively in 2016-17. As per the data, about 94 per cent of the certified organic land found registered in the above selected 15 Indian States.

10. Challenges

Organic spice production and export face a number of challenges.

- I. The bio control programmes developed for soil-borne diseases are showing up encouraging results which are in tune with organic cultivation. A few pernicious pests like cardamom capsule thrips and chilli fruit borers are also difficult to control mechanically or by the use of botanicals. There are a number of other pests and diseases for which effective control measures are lacking in organic cultivation.
- II. Shortage of organic manure is often experienced when large quantities are required for converting lands with less fertile soils. Bringing organic manure from outside sources makes organic cultivation very expensive. A farmer is expected to build up the organic manure from the available resource in his farm itself in the long run.
- III. Presently very little research is carried out for organic production of different spices. Further the extension agencies of the state government are not familiar with regulations formulated in different countries for organic production and the concepts behind them. Hence farmers have to depend upon the standards prescribed elsewhere and the general guidelines which can be drawn upon these standards for organic cultivation. Interactive training programmes need to be organized for all concerned.
- IV. There is no domestic market today for organic spices and depends solely on foreign markets. There is need to develop domestic market for organic spices through concerted efforts by popularizing the healthy and safe organic spices if sustained growth is to be achieved in this industry. International market for organic spices is very small now. As long as the consumers demand eco-friendly pesticide free organic spices, demand will grow and the global market would remain competitive and Indian spice farmers should move agile to meet the challenge. There can be a surplus supply situation in the future reducing the premium now available over the

conventional quality. This will adversely affect the organic export potential.

11. Conclusion

Sustainable development in agriculture is possible by using the organic farming method and avoiding the use of inorganic farming. There is need to identify suitable crops/products on regional basis for organic production that has international market demands. The conditions for development of sustainable agriculture are becoming more and more favorable. New opportunities are opening the eyes of farmers, development workers, researchers and policy makers. They now see the potential and importance of these practices not only for their direct economic interest but also as the basis of further intensification and ecological sustainability. Uses of naturally available green manure, animal manure, compost, biological pest, which is eco friendly, reduce the cost of production, enhance the soil fertility, increases longevity of life and enhance the quality of life.

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