



## Organic Farming in India: The Relevance and Constraints

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### *Abstract*

*The relevance and need for an eco-friendly alternative farming system arose from the ill effects of the chemical farming practices adopted worldwide during the second half of the last century. The methods of farming evolved and adopted by our forefathers for centuries were less injurious to the environment. People began to think of various alternative farming systems based on the protection of environment which in turn would increase the welfare of the humankind by various ways like clean and healthy foods, an ecology which is conducive to the survival of all the living and non-living things, low use of the non-renewable energy sources, etc. Many systems of farming came out of the efforts of many experts and laymen. However, organic farming is considered to be the best among all of them because of its scientific approach and wider acceptance all over the world. The negative effects of modern chemical based farming system were first experienced by those countries, which introduced it initially. The main objective of the paper is to assess and evaluate the factors which may facilitate the adoption of organic farming in the country by eliminating constraints.*

*Key Words: Organic Farming, Relevance, Constraints, benefits and Progress*

### **1. Introduction:**

The system of our agriculture based on the traditional knowledge and practices handed down from generation to generation could not produce enough to feed the increasing population. The ignominy of our dependence for food on the western developed nations and the politics of food aid practiced by them added to our determination to be self-sufficient in food production by modernising agriculture. The green revolution fulfilled our aspirations by changing India from a food importing to a food exporting nation. However, the achievement was at the expense of ecology and environment and to the detriment of the well-being of the people. The agriculture system adopted from the west has started showing increasing unsustainability and once again the need

for an appropriate method suitable to our requirements is being felt.

Organic farming, evolved on the basic theoretical expositions of Rodale in the United States, Lady Balfour in England and Sir Albert Howard in India in the 1940s, has progressed to cover about 23 million hectares of land all over the world. Howard's magnum opus, 'An Agricultural Testament' has a special significance to us in India as it is based on an analysis of the environment friendly farming practiced here for centuries. However, it is another matter that we lag behind a majority of agriculture based countries in the world in the practice of organic farming in spite of the fact that we have been one of the sufferers of the conventional farming system.



The relatively high success of organic farming in some countries are due to the high awareness of the health problems caused by the consumption of contaminated food products, the ill effects of environment degradation, appropriate supports by the government and organisations like the European Union and International Federation of Organic Agriculture Movements (IFOAM). The financial support for organic farming extended by various national and provincial governments in these countries is very substantial to push up the spread of organic methods. Strong marketing networks linking the farms, processing and distribution and the organisation of production under the NGOs with stringent certification programmes were other facts, which contributed to the growth of organic farming. The growth rate of market values of organic products is about 20 per cent per annum in some of these countries.

The conventional farming had helped India not only to produce enough food for own consumption but also generated surpluses for exports. However, the increasing population and income will lead to further increases in demand for food and also for raw materials for industry. The modern system of farming, it is increasingly felt, is becoming unsustainable as evidenced by declining crop productivities, damage to environment, chemical contaminations, etc. The necessity of having an alternative agriculture method which can function in a friendly ecosystem while sustaining and increasing the crop productivity is realised now. Organic farming is recognised as the best known alternative to the conventional agriculture. The practice of organic farming, said to the best known

alternative to the conventional method, also originated in the west, which suffered from the ill effects of chemical agriculture.

## 2. Review of Earlier Studies:

Bemwad Geier (1999) is of the opinion that there is no other farming method so clearly regulated by standards and rules as organic agriculture. The organic movement has decades of experience through practicing ecologically sound agriculture and also in establishing inspection and certification schemes to give the consumers the guarantee and confidence in actuality. Organic farming reduces external inputs and it is based on a holistic approach to farming. He describes the worldwide success stories of organic farming based on the performance of important countries in the west. The magnitude of world trade in organic farming products is also mentioned. To the question of whether the organic farming can feed the world, he says that neither chemical nor organic farming systems can do it; but the farmers can.

Save and Sanghavi (1991) are of the view that after their intensive experiments with organic farming and narrating the results to the informed, it is time that the governments and farmers are brought around. They firmly state that the economic profitability of organic farming can be proved. Four crops of banana grown by the natural way on the same farm by them are compared with those produced by the conventional way. While the natural farm yielded 18 kg of banana in the first round, the conventional one gave 25 kg. 30 kg was the yield at the second round on both the farms. However, on the third round, the natural farm gave 25 kg, the conventional one yielded only 20 kg. The results on the



fourth round were stunning - the plants on the conventional farm died out; but the natural ones gave 15 kg on an average. Thus, the aggregate output was 88 kg on the natural farm and 75 kg on the conventional one.

Kaushik (1997) analyses the issues and policy implications in the adoption of sustainable agriculture. The concept of trades off has a forceful role to play in organic farming both at the individual and national decision making levels. Public vis-a-vis private benefits, current vis-a-vis future incomes, current consumption and future growths, etc., are very pertinent issues to be determined. The author also lists a host of other issues. While this study makes a contribution at the conceptual level, it has not attempted to answer the practical questions in the minds of the farmers and other sections of the people.

Veeresh (1999) opines that both high technology and sustainable environment cannot go together. Organic farming is conceived as one of the alternatives to conventional agriculture in order to sustain production without seriously harming the environment and ecology. However, he says that in different countries organic farming is perceived differently. While in the advanced countries, its focus is on prevention of chemical contamination, we, in countries like India are concerned of the low soil productivity. Even the capacity to absorb fertilisers depends on the organic content of the soil. The principles of organic farming are more scientific than those of the conventional. India's productivity of many crops is the lowest in the world in spite of the increase in the conventional input use. The decline in soil nutrients, particularly in areas where the chemical inputs are

increasingly being used in the absence of adequate organic matter is cited as a reason for low productivity.

Sankaram Ayala (2001) is of the view that almost all benefits of high yielding varieties based farming accrue mostly in the short term and in the long term they cause adverse effects. There is an urgent need for a corrective action. The author rules out organic farming based on the absolute exclusion of fertilisers and chemicals, not only for the present, but also in the foreseeable future. There ought to be an appropriate blend of conventional farming system and its alternatives. The average yields under organic and conventional practices are almost the same and the declining yield rate over time is slightly lower in organic farming. The author also quotes a US aggregate economic model, which shows substantial decreased yields on the widespread adoption of organic farming. Decreased aggregate outputs, increased farm income and increased consumer prices are other results the model gives.

Singh and others (2001), 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, soyabean and sesame. Save (1992) 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. Methodology:**



The paper is based on secondary data. Information from literature on the historical evolution of the organic farming and the progress it has made both in India and abroad collected from the published sources like the websites of the European Union countries. International Federation of Organic Farming Movements (IFOAM), books and periodicals and news paper reports is liberally used for the preparation of the paper. Discussions with informed individuals, institutions, agriculture experts, social scientists, economists, government administrators, policy makers, consumers, market intermediaries, Accreditation and Certification Agencies, NGOs and farmers were held.

#### **4. Relevance of Organic Farming in India:**

The need for organic farming in India arises from the unsustainability of agriculture production and the damage caused to ecology through the conventional farming practices. The present system of agriculture which we call 'conventional' and practiced the world over evolved in the western nations as a product of their socio-economic environment which promoted an over riding quest for accumulation of wealth. This method of farming adopted by other countries is inherently self destructive and unsustainable. The organic agriculture movement in India received inspiration and assistance from IFOAM which has about 600 organisational members from 120 countries. All India Federation of Organic Farming (AIFO) is a member of IFOAM and consists of a number of NGOs, farmers' organisations, promotional bodies and institutions. India can benefit from this experiment.

#### **5. Benefits of organic farming:**

Organic agricultural practices are based on a maximum harmonious relationship with nature aiming at the non-destruction of the environment. The developed nations of the world are concerned about the spreading contamination of poisonous chemicals in food, feed, fodder and fiber. Naturally, organic farming system is looked upon as one of the means to remedy these maladies there. However, the major problem in India is the poor productivity of our soils because of the low level content of the organic matter. The efficiency of the organic inputs in the promotion of productivity depends on the organic contents of the soil. There were many resemblances of organic farming principles in the traditional agriculture of India. But the former gives a more open and verifiable scientific foundation than the latter.

##### **5.1. Healthy Foods:**

A study conducted in USA on the nutritional values of both organic and conventional foods found that consumption of the former is healthier. Apples, pears, potatoes, corn, wheat and baby foods were analysed to find out 'bad' elements such as aluminum, cadmium, lead and mercury and also 'good' elements like boron, calcium, iron, magnesium selenium and zinc. The organic food, in general, had more than 20 per cent less of the bad elements and about 100 per cent more of the good elements.

##### **5.2. Improvement in Soil Quality:**

Soil quality is the foundation on which organic farming is based. Efforts are directed to build and maintain the soil fertility through the farming practices. Multi-cropping, crop rotations, organic manures and pesticides, and minimum tillage are the methods



employed for the purpose. Natural plant nutrients from green manures, farmyard manures, composts and plant residues build organic content in the soil. It is reported that soil under organic farming conditions had lower bulk density, higher water holding capacity, higher microbial biomass carbon and nitrogen and higher soil respiration activities compared to the conventional farms (Sharma, 2003). This indicates that sufficiently higher amounts of nutrients are made available to the crops due to enhanced microbial activity under organic farming.

### **5.3. Increased Crop Productivity and Income:**

Field trials of organic cotton at Nagpur revealed that during the conversion period, cotton yield was low compared to the conventional (using fertiliser and pesticides) and integrated crop management (using organic and inorganic inputs). However, the yields of organic cotton started rising. Cotton yields under organic, conventional and the mixed systems were 898, 623 and 710 kg/ha respectively at the end of the fourth year of the cultivation. The yield of soyabean under organic farming was also the highest compared to the other two systems. The Central Institute for Cotton Research, Nagpur conducted a study of economics of cotton cultivation in Yavatmal district of Maharashtra. The cost of cultivation of cotton was lower in the organic farming than in the modern system. The low costs were due to the non-use of fertilisers and chemical insecticides. As a result of the low yields during the conversion period, the net income from the organic farm was lesser than the conventional farm. But the yield under organic method increased progressively to that of the conventional system by the sixth year. The input costs

were low under organic farming and with a 20 per cent of premium prices of output, the net income increased progressively from fourth year under organic farming. The appreciation of net income from organic cotton cultivation by the sixth year was 80 per cent over the conventional crop.

### **5.4. Low Incidence of Pests:**

The study of the effectiveness of organic cotton cultivation on pests at the farm of Central Institute for Cotton Research, Nagpur revealed that the mean monthly counts of eggs, larva and adults of American Bollworm were far lesser under organic farming than under the conventional method. Bio-control methods like the neem based pesticides to Trichoderma are available in the country. Indigenous technological products such as Panchagavya (five products of cow origin) which was experimented at the University of Agricultural Sciences, Bangalore found to control effectively wilt disease in tomato.

### **5.5. Employment Opportunities:**

According to many studies, organic farming requires more labour input than the conventional farming system. Thus, India which has a very large amount of labour unemployment and under employment will find organic farming an attraction. Moreover, the problem of periodical unemployment will also get mitigated because of the diversification of the crops with their different planting and harvesting schedules resulting in the requirement of a relatively high labour input.

### **5.6. Indirect Benefits:**

Several indirect benefits from organic farming are available to both the farmers and consumers. While the



consumers get healthy foods with better palatability and taste and nutritive values, the farmers are indirectly benefited from healthy soils and farm production environment. Eco-tourism is increasingly becoming popular and organic farms have turned into such favourite spots in countries like Italy. Protection of the ecosystem, flora, fauna and increased biodiversity and the resulting benefits to all human and living things are great advantages of organic farming which are yet to be properly accounted for.

#### **6. Progress of Organic Farming In India:**

An important progress towards organic agriculture made by India is the increasing awareness of the ill effects of the modern farming system, which the country adopted about 35 years ago. The threat poised by the conventional food products to the human health and the damage done to the ecology are being viewed seriously. Efforts are made to produce healthy foods and the demand for them is increasing. The importance of the marketing of the organic products is highlighted for the promotion of organic agriculture. Several individuals and associations have taken to organic farming and organic products are available in the large cities to a very limited extent.

The most important step towards organic farming taken by the government was to draw a regulatory framework. It is true that the initiatives by the government to introduce organic farming by laying down regulations came belatedly as many countries have already done this kind of basic work decades ago. The implementation of NPOP is ensured by the formulation of the National Accreditation Policy and Programme (NAPP). The regulations make it

mandatory that all organic certification bodies should be accredited by an Accreditation Agency. The international certification agencies operating in India even prior to these regulations will also have to get accreditation under the new dispensation. A National Institute for Organic Farming has been established to spearhead research in organic agriculture. The government of India constituted task force had also recommended the initiation of the postgraduate level courses in organic farming. The Morarka Foundation and Maharana Pratap University of Agriculture and Technology (MPUAT), Rajasthan have collaborated in the implementation of such a programme.

Several projects and initiatives to promote organic farming in the country have begun at the behest of individuals and institutions. An initiative for the spread of organic farming by various stakeholders in the Indian organic agriculture sector is their coming together to constitute an apex body for providing centralised services and expertise for the increasing number of organic farmers in the country. Initial steps for setting up the Indian Competence Centre for Organic Agriculture (ICCOA) has been taken at a meeting held at the National Academy for Agricultural Sciences in New Delhi in 2003 under the joint auspices of INDOCERT, a Kerala based organic certification agency and the Swiss based FIBL (Research Institute of Organic Agriculture).

#### **7. Problems and Constraints:**

It is quite natural that a change in the system of agriculture in a country of more than a billion people should be a well thought out process, which requires utmost care and caution. There may be



several impediments on the way. The most important constraint felt in the progress of organic farming is the inability of the government policy making level to take a firm decision to promote organic agriculture. Unless such a clear and unambiguous direction is available in terms of both financial and technical supports, from the Centre to the Panchayath levels, mere regulation making will amount to nothing. The adoption and maintenance of a regulatory framework and its implementation will be costly for the developing countries like India.

#### **7.1. Lack of Awareness:**

It is a fact that many farmers in the country have only vague ideas about organic farming and its advantages as against the conventional farming methods. Use of bio-fertilizers and bio pesticides requires awareness and willingness on the part of the farming community. Knowledge about the availability and usefulness of supplementary nutrients to enrich the soil is also vital to increase productivity. Farmers lack knowledge of compost making using the modern techniques and also its application. The maximum they do is making a pit and fill it with small quantities of wastes. Often the pit is flooded with rainwater and result is the top of the compost remains under composted the bottom becomes like a hard cake. Proper training to the farmers will be necessary to make vermi- compost on the modern lines.

#### **7.2. Output Marketing Problems:**

It is found that before the beginning of the cultivation of organic crops, their marketability and that too at a premium over the conventional produce has to be assured. Inability to obtain a

premium price, at least during the period required to achieve the productivity levels of the conventional crop will be a setback. It was found that the farmers of organic wheat in Rajasthan got lower prices than those of the conventional wheat. The cost of marketing of both types of products was also same and the buyers of wheat were not prepared to pay higher prices to the organic variety (Rao, 2003).

#### **7.3. Shortage of Bio-mass:**

Many experts and well informed farmers are not sure whether all the nutrients with the required quantities can be made available by the organic materials. Even if this problem can be surmounted, they are of the view that the available organic matter is not simply enough to meet the requirements. The crop residues useful to prepare vermi-compost are removed after harvest from the farms and they are used as fodder and fuel. Even if some are left out on the farms termites, etc destroy them. Experiments have shown that the crop residues ploughed back into soil will increase productivity and a better alternative is conversion into compost. The small and marginal cultivators have difficulties in getting the organic manures compared to the chemical fertilisers.

#### **7.4. High Input Costs:**

The small and marginal farmers in India have been practicing a sort of organic farming in the form of the traditional farming system. They use local or own farm renewable resources and carry on the agricultural practices in an ecologically friendly environment. However, now the costs of the organic inputs are higher than those of industrially produced chemical fertilisers



and pesticides including other inputs used in the conventional farming system. The groundnut cake, neem seed and cake, vermi-compost, silt, cow dung, other manures, etc. applied as organic manure are increasingly becoming costly making them unaffordable to the small cultivators.

#### **7.5. Marketing Problems of Organic Inputs:**

Bio-fertilisers and bio-pesticides are yet to become popular in the country. There is a lack of marketing and distribution network for them because the retailers are not interested to deal in these products, as the demand is low. The erratic supplies and the low level of awareness of the cultivators also add to the problem. Higher margins of profit for chemical fertilisers and pesticides for retailing, heavy advertisement campaigns by the manufacturers and dealers are other major problems affecting the markets for organic inputs in India.

#### **7.6. Low Yields:**

In many cases the farmers experience some loss in yields on discarding synthetic inputs on conversion of their farming method from conventional to organic. Restoration of full biological activity in terms of growth of beneficial insect populations, nitrogen fixation from legumes, pest suppression and fertility problems will take some time and the reduction in the yield rates is the result in the interregnum. It may also be possible that it will take years to make organic production possible on the farm. Small and marginal farmers cannot take the risk of low yields for the initial 2-3 years on the conversion to organic farming. There are no schemes to compensate them during the gestation period. The price premiums on the

organic products will not be much of help, as they will disappear once significant quantities of organic farm products are made available.

#### **8. Conclusion:**

The broad objectives of organic farming in India in the light of the discussions on the adverse effects of the conventional farming system the country practiced for about 30-40 years and the potential benefits of the organic methods are Sustainable agriculture, Increasing agriculture production, Food self-sufficiency, Environmental protection, Conservation of natural resources and Rural development. The developing countries like India have to design a plethora of national and regional standards in attune with those of the developed countries. It may be concluded that substantial financial support by governments (Central, state and lower level bodies) is absolutely necessary to promote organic farming as organic agriculture is gaining momentum as an alternative method to the modern system. An appropriate national agriculture policy, giving a prominent place to organic farming addressing the issues related to its coverage, financial support during the conversion period, creation of linkages among the farmers, processors, traders and consumers, inspection and certification of organic products and increasing the public awareness of the benefits of organic agriculture along with the ill effects of the conventional system, should be designed. This must be followed by concrete action on the ground if we do not want to miss the far reaching changes all over the world heralded by the organic farming movement.





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