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An Evaluation on Recent Status and Prospects of Organic Farming: International and National Overview

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Abstract – 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. Organic farming emerged as a potential alternative for meeting food demand, maintaining soil fertility and increasing soil carbon pool. Organic production systems are particularly suitable to smallholder farmers as these systems depend on the sustainable use of local resources and on farmers' traditional knowledge and social networks. The shift to organic farming also offers health benefits for consumers and contributes to biodiversity conservation and climate change mitigation. Food security as a priority for organics may also involve enabling women's empowerment since they hold a central role in providing nutrition for the household.

This review paper attempts to bring together different issues in the light of recent developments in organic farming. The after effects of green revolution have encouraged the farmers to take up organic farming. This paper has reviewed the global and Indian scenario with reference to organic farming. The potential for organic farming, especially in the dryland regions has been discussed. It has been argued that organic farming is productive and sustainable, but there is a need for strong support to it in the form of subsidies, agricultural extension services and research.

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INTRODUCTION

The term ‗organic' was first used in relation to farming by Northbourne (1940) in his book Look to the Land. 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 within the system.

The recent economic and trade liberalization are exerting heavy pressure on India's land resource partitioning in sectors such as forestry, agriculture, pasture lands, human settlements and industries. Thus, the coupled effect of meeting food demand under limited arable area and toxin-free agricultural produce have become an important forcing factor for countries like ours to explore possibilities for opting ‗conventional agriculture', the dominant farming approach promoted by most government and agribusiness groups throughout the world or ‗organic agriculture' a holistic production management system which is supportive to environment, health and sustainability. Organic farming system emphasis on the use of organic matter for enhancing soil properties, minimizing food chain associated health hazards and attaining closed nutrient cycles, the key factors for sustainable agriculture (Cardelli et al., 2004). According to the International Federation of Organic Agriculture Movement (Willer et al., 2008) the major objectives of organic farming include:

1. Production of high quality food in sufficient quantity in harmony with natural systems and cycles,

2. Enhancing biological cycles within the farming system involving microorganisms, soil flora and fauna, plants and animals,

3. Maintaining long-term soil fertility and genetic diversity of the production system and its surroundings including plant and wildlife,

4. Promoting healthy use with proper care of water resources and all life therein,

5. Creating harmonious balance between crop production and animal husbandry, and

6. Minimizing all forms of pollution.

Organic farms although yield on an average 10-15% less than conventional farms, the lower yields are balanced by lower input costs and higher margins. Its annual growth rate has been about 20% for the last decade (Lotter, 2003), accounting for over 31 million hectares of area and generating over 26 billion US dollars in annual trade worldwide (Escobar and Hue, 2007). Organic agriculture is now being practiced in more than 130 countries with a total area of 30.4 million hectare, about 0.65% of total agricultural land of the world (Willer et al., 2008). With respect to the area under organic agriculture, Australia occupies the prime position followed by China, Argentina, USA, Italy and many other countries (Willer et al., 2008).

India, although comes at second place with respect to total number of certified organic farms (44,926), occupies 13th position as far as the area under organic agriculture concerns. In India, about 528,171 hectare area is under organic agriculture (including certified and area under organic conversion) accounting for about 0.3% of total agricultural land. Despite the economic boom our country is witnessing from last few decades.

Organic farming emerged as a potential alternative for meeting food demand, maintaining soil fertility and increasing soil carbon pool. However, Indian organic farming industry is almost entirely export oriented, running as contract farming under financial agreement with contracting firms, and as per the latest report (Ramesh et al., 2010), about 585,970 tons of organic products worth US$ 6.8 million are being exported from India. Most of the farmers are opting organic farming due to price margins which may shift motive of the commercial farmers towards economic vantage rather than for safe agricultural produce to competitively discourage small farm holders. Additionally, limitations regarding bulk availability of organic supplements further constrain organic farming in India. Despite these issues, the increasing market demand and institutional support coupled with growing inclination of farmers to go organic have resulted in rapid growth in certified organic area during last 2-3 years. The objective of this review is to assess the status and potential of organic farming and the constraints therein impeding the adoption of this sustainable agricultural practice in India. Organic farming is well recognized for its contribution to improving food security and alleviating poverty, proactively creating new local and export markets, and driving sustainable rural development through the empowerment of farmers and their organizations.

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 (Ram, 2003). Farmers do not find agriculture a viable proposition anymore and in fact, a large number of farmers have committed suicides (Deshpande, 2002). Some of the factors that contributed to the present crisis in farming could be the shooting-up of the price of factory-made external inputs and the government's slow withdrawl of investment as well as market intervention and more significantly, shifting of subsistence farming (mainly with homegrown inputs) to commercial farming (largely with purchased inputs). In other words, local indigenous farm techniques have been wiped out and replaced by the modern techniques, resulting in an unviable and unsustainable farm enterprise. It is in this context that alternative farm techniques and strategies for growing crops ought to be found in the larger interest. The principle of organic cultivation is attracting farmers world over due to its various advantages over modern agricultural practices. Essentially, it is a farming system which supports and strengthens biological processes without recourse to inorganic remedies such as chemicals or genetically modified organisms. Organic agriculture is productive and sustainable (Mader et al., 2002).

Many state-supported agencies, non-governmental organizations (NGOs) and individuals have started experimenting with organic methods of food production in the recent past. The most popularly accepted definition of organic farming is : '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 wherever possible, agronomic, biological and mechanical methods, as opposed to using synthetic materials, to fulfill any specific function within the system'. The term 'conventional farming' refers to a production system which employs a full range of pre- and post-plant tillage practices (e.g. plough, disc plant, cultivator), synthetic fertilizers and pesticides. It is characterized by a high degree of crop specialization. In contrast, organic farming is characterized by a diversity of crops.

ORGANIC FARMING: AN OVERVIEW

The concept of organic farming is not clearto 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 fertililsers/pesticidesare organic farming. But this is nottrue. The organic farming in real sense envisagesa comprehensive management approach to improve the health of underlying productivity of the soil.

EarlierLampkin mentionedthat organic agriculture is a production system which avoids or largely excludes the use of synthetic compounded fertilisers, pesticides, growth regulators and livestock feed additives. It relies on crop rotation, crop residues, animal manure, legumes, green manure, off farming organic waste and aspects of biological pest control. But the most recognised def;nition is as below:

The term "organic" is best thought of as referring not to the type of inputs used, but to the concept of the farm as an organisms, in which all the components - the soil minerals, organic matter, microorganisms, insects, plants, animal and humans - interact to create coherent, self-regulating and stable whole. Reliance on external inputs, whether chemical or organic, is reduced asfar as possible. Organic farming is (w) holistic production system. The system takes local soil fertility as a key to successful production. As a logical consequence, International Federation of Organic Agriculture Movements (IFOAM) stresses and supports the development of self-supporting systems on local and regional levels.

The approach and outlook towards agriculture and marketing of food has seen a quantum change worldwide over the last few decades. Whereas earlier the seasons and the climate of an area determined what would be grown and when, today it is the "market" that determines what it wants and what should be grown. The focus is now more on quantity and "outer" quality (appearance) rather than intrinsic or nutritional quality, also called "vitality". Pesticide and other chemical residues in food and an overall reduced quality of food have led to a marked increase in various diseases, mainly various forms of cancer and reduced bodily immunity.

This immense commercialization of agriculture has also had a very negative effect on the environment. The use of pesticides has led to enormous levels of chemical buildup in our environment, in soil, water, air, in animals and even in our own bodies. Fertilizers have a short-term effect on productivity but a longer-term negative effect on the environment where they remain for years after leaching and running off, contaminating ground water and water bodies. The use of hybrid seeds and the practice of monoculture have led to a severe threat to local and indigenous varieties, whose germplasm can be lost forever. All of this is for "productivity".

In the name of growing more to feed the earth, we have taken the wrong road of unsustainability. The effects already show - farmers committing suicide in growing numbers with every passing year; the horrendous effects of pesticide sprays by a government-owned plantation in Kerala, India some years ago; the pesticide contaminated bottled water and aerated beverages are only some instances. The bigger picture that rarely makes news however is that millions of people are still underfed and where they do get enough to eat, the food they eat has the capability to eventually kill them. Yet, the picture painted for the future by agro-chemical and seed companies and governments is rosy and bright.

Another negative effect of this trend has been on the fortunes of the farming communities worldwide. Despite this so-called increased productivity, farmers in practically Chandrasekhar 035 every country around the world have seen a downturn in their fortunes. The only beneficiaries of this new outlook towards food and agriculture seem to be the agrochemical companies, seed companies and though not related to the chemicalisation of agriculture, but equally part of the "big money syndrome" responsible for the farmers' troubles - the large, multi-national companies that trade in food, especially food grains.

This is where organic farming comes in. Organic farming has the capability to take care of each of these problems. Besides the obvious immediate and positive effects organic or natural farming has on the environment and quality of food, it also greatly helps a farmer to become self-sufficient in his requirements for agro-inputs and reduce his costs.

ORGANIC FARMING IN INDIA

India is endowed with various types of naturally viable organic form of nutrients across different regions of the country which will be helpful in organic cultivation of crops (Butterworth et al., 2003; Reddy, 2010b). This will help substantially in organic cultivation of crops. There is a wide diversity in climate and eco-system. India has a strong traditional farming system with innovative farmers, vast dry lands and least use of chemicals. In fact, the rain-fed tribal, north-east and hilly regions of the country where negligible chemicals are used in agriculture, have been practicing subsistence agriculture for a long period; such areas are organic by default.

Indian economy is suffering from the typical transition faced by most economies as they tread from being underdeveloped to developing and finally to developed. Most economies tend to shift from an agricultural sector to the industrial sector followed by a very large service sector. The Indian economy, in its transition, has shifted base from an agricultural

sector to a more pronounced service sector- thus leading to the problems that we face today. India suffers from what is typically called in economics to be a problem of surplus labor and deficit capital. In simple words, it means that while manual labor is large and easily available in India, the capital required for a robust industrial growth is majorly missing. Many economists are of the opinion that this might the cause of the lopsided growth that we currently exhibit. In India, more than 54% of the GDP comes from agriculture. Many economists are of the belief that the transition from agriculture to industry is not happening as expected or required and hence the best thing that can be done at the moment is to slow down the transition from the agricultural sector to other sectors. Most farms in India are being converted for use as other things. The land, being short in supply, sells for huge sums and most farmers tend to sell the farms and move to the cities to work as day laborers or in jobs as such.

The idea that is being considered as a potential turnover is that the government should sell stakes for these farmlands to big business houses and make it profitable to be a farmer. What it means is that the agricultural land can be used to grow organic foods- which are labor intensive and hence costly- and India can become an exporter of the same. The world demand for organic foods is on a severe rise and it is predicted that with the number of sucrose injected foods in the market at present, this demand is set to rise exponentially. India can convert itself into a potential exporter of the organically produced foods. This shall not only absorb the high levels of unemployment that persist in the economy but shall also ensure that we maintain the 33.33% green cover that is mandatory. Post the green revolution decades ago, India is yet to see another surge in production of food. Being a nation with the second largest population, food security is a big threat.

STATUS OF ORGANIC FARMING

Organic agriculture is developing rapidly and today atleast 141 countries produce organic food commercially. As per the estimates in the year 2007, organic food is produced in about 32.2 million hectares

(Mha) globally, managed by more than 1.2 million producers, including smallholders. In addition to agricultural land, there are 0.4 M ha of certified organic aquaculture. Among the countries involved in organic farming, about 65 per cent are developing countries.

The regions with the largest areas of organically managed agricultural land are : Oceania, Europe and Latin America. Australia, Argentina and Brazil are the countries with the largest organically managed land areas. About one-third of the world's organically managed land — almost 11 Mha — is located in the developing countries. Most of this land is in Latin American countries, while Asia and Africa take the second and third places, respectively. On a global level, in the year 2008, organic land area increased by almost 1.5 M ha compared to the data for the year 2006. About 28 per cent (or 1.4 Mha) more land under organic management was reported for Latin America (including 0.9 M.ha of in-conversion land in Brazil for which no data was available previously). In Europe, organically managed land increased by 0.33 Mha (+ 4%) and by 0.18 Mha (+27%) in Africa (Willer and Klicher, 2009).

In India, only 0.03 per cent of the area is under organic farming, though there is huge scope for bringing more land under organic farming. India has traditionally practiced organic agriculture, but the process of modernization, particularly the green revolution technologies, has led to the increased use of chemicals. In recent years, however, limitations of agriculture based on chemical use and intensive irrigation have become apparent and there has been a resurgence of interest in organic agriculture. Renewed interest in organic agriculture is mainly due to two concerns, falling agricultural yield in certain areas as a result of inter alia excessive use of chemical inputs, decreased soil fertility and environmental awareness. Exports also played a role but perhaps lesser than in other countries.

ADVANTAGES OF ORGANIC FARMING

Organic farming is more cost effective. It reduces the production cost by about 25-30%, because it does not involve the use of synthetic fertilizers and pesticides. Some are as follows:

- It retains 40% more top soil, thus increasing the crop yield up to five-fold within five years.
- Organic farming is more profitable because it reduces water use, nutrient-contamination by pesticides, and reduced soil erosion.
- It 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.
- Cattle grazing on organic farmlands have been found to be less prone to diseases, and they yield more healthy milk.
- Products or foodstuffs produced from organic farming do not contain any sort of artificial flavors or preservatives.
- Due to the absence of synthetic fertilizers and pesticides, the original nutritional content of food is preserved.
- Organic farming also helps reduce the occurrence of many ailments, and speeds the recovery process by boosting the immune system.

Many countries have recognized and responded to these potential benefits by encouraging farmers to adopt organic farming practices, either directly through financial incentives or indirectly through support for research, extension and marketing initiatives. As a consequence, the organic sector throughout Europe is expanded rapidly (24% of world's organic land). But, in the developing countries like India, the share is around 2 per cent only (included certified and wildlife). However, there is considerable latent interest among farmers in conversion to organic farming in India.

CONCLUSION

Organic agriculture (OA) is uniquely pro-poor and has strong potential to meet multi policy objectives that go beyond reducing income poverty to include the eco-achievement like green growth & climate mitigations. It promotes Green Productivity in agriculture and mitigates the negative impacts of conventional input-intensive agriculture by excluding the use of agrochemical inputs from the production system, minimizing environmental pollution, promoting reuse and recycling of organic farm waste and crop residues, improving biodiversity, and enhancing soil productivity.

A vast scope for promotion of organic farming in the export market, without compromising with the national food security exists in the country, as farming by tribal's and under rain fed conditions is generally organic, since very little chemical inputs are used. Organic farming as a concept/philosophy is well tested in some of the western countries, though the same is not unknown to most of the nations.

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