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Changing scenario of organic farming in India: An overview

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Accepted 18 June, 2009

India produces a large variety of food crops including cereals, pulses and oilseeds. Diversified agriculture is the priority of the Central Government, and technical and financial support is being extended to farmers to encourage diversification especially in the areas of horticulture, floriculture, medicinal and aromatic plants, apiculture (bee-keeping) and sericulture. The government is continuously working towards the development of the agribusiness sector through considerable emphasis on infrastructure and food processing. However, there is still a scope for further development and up-gradation of technology and agri-infrastructure to attain world-class standards. The main emphasis is on quality enhancement, infrastructure development and the use of modern technology. Organic farming was practiced in India since thousands of years. The great Indian civilization thrived on organic farming and was one of the most prosperous countries in the world, till the British ruled it. Increasing pesticide residues in food materials, eutrophication of surface and ground-waters and increasing nitrous oxide emissions which are detrimental to the ozone layer of the atmosphere, drew attention towards the harmful effects of modern agriculture and environmentalists pressed hard for a more sustainable agriculture. The role of organic farming in India rural economy can be leveraged to mitigate the ever-increasing problem of food security in India. With rapid industrialization of rural states of India, there has been a crunch for farmland. Further, with the exponential population growth of India, the need for food sufficiency has become the need of the hour. Furthermore, the overuse of plant growth inhibitor, pesticides and fertilizers for faster growth of agricultural produce is detrimental to human health and the environment as a whole. An attempt is made to analyze the importance of organic farming, principle of organic farming, Organic farming in rural economy, consumption pattern and export of organically produced products in India.

Key words: Organic farming, organic food consumption, organic food industry, principles of organic farming.

INTRODUCTION

With 67% of our population and 55% of the total work force depending on agriculture and other allied activities, agriculture meets the basic needs of India's growing population. It has been estimated that for India to achieve a double digit GDP growth rate, agricultural growth of around 4% is required. Agriculture is the backbone of the Indian economy. Despite this, it is facing various constraints such as fragmentation of landholding, low productivity and conversion of agricultural land to non-agricultural uses. Still there are increasing investment opportunities in the sector due to the rising need for quality and value-added products.

The Definition of the word "Organic", an ecological management production system that promotes and enhances biodiversity, biological cycles and soil biological

activity. It is based on the minimal use of off-farm inputs and on management practices that restore, maintain and enhance "ecological harmony" (National Standards Board of the US Department of Agriculture (USDA)).

It may be emphasized here that in the production and marketing of organically produced agricultural products, the check is on the process of its production rather than the product per se, although quality standards, which are quite strict, have to be adhered to. On the contrary, in the production and marketing of most industrial products, the stress is on the quality of the final product.

Increasing pesticide residues in food materials, eutrophication of surface and ground-waters and increasing nitrous oxide emissions which are detrimental to the ozone layer of the atmosphere, drew attention towards the harm-

ful effects of modern agriculture and environmentalists pressed hard for a more sustainable agriculture.

The steering committee, under the Chairmanship of Dr. M. S. Swaminathan, appointed by the task force on organic farming of the ministry of agriculture and cooperation, advocated giving boost to organic farming in rain fed areas and in north eastern states, where there was limited use of fertilizers and other agricultural chemicals. Madhya Pradesh, Uttaranchal and Sikkim have already declared themselves as organic states. But such areas are organic by default. At Maharashtra alone has a sizeable of about 0.5 million ha. Under organic farming will not help. For marketing the organic produce at a premium price, proper certification is a must.

Organic farming

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

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 agro-chemical 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.

Chemical agriculture and the agriculture and food distribution systems have developed, propagated, sustained and now share a symbiotic relationship which affects each of us in many ways.

Main principle of organic farming

The main principles of organic farming are the followings:

- To work as much as possible within a closed system, and draw upon local resources.
- To maintain the long-term fertility of soils.
- To avoid all forms of pollution that may result from agricultural techniques.
- To produce foodstuffs of high nutritional quality and sufficient quantity.
- To reduce the use of fossil energy in agricultural practice to a minimum.
- To give livestock conditions of life that conform to their physiological need.
- To make it possible for agricultural producers to earn a living through their work and develop their potentialities as human being.

The four pillars of organic farming are:

- 1) Organic standards.
- 2) Certification / Regulatory mechanism.
- 3) Technology packages.
- 4) Market network.

Organic farming in India rural economy

The role of organic farming in India rural economy can be leveraged to mitigate the ever-increasing problem of food security in India. With rapid industrialization of rural states of India, there has been a crunch for farmland. Further, with the exponential population growth of India, the need for food sufficiency has become the need of the hour. Furthermore, the overuse of plant growth inhibitor, pesticides and fertilizers for faster growth of agricultural produce is detrimental to human health and the environ-

ment as a whole. The proposition of organic farming in India rural economy holds good, as an alternative to arrest this problem. The introduction of the process of organic farming in India rural economy is a very new concept. The huge furor over the overuse of harmful pesticides and fertilizers to increase agricultural output has in fact catalyzed the entry of organic farming in India rural economy. The process of organic farming involves using of naturally occurring and decomposable matter for growth and disease resistance of different crops. The concept of organic farming in India dates back to 10,000 years and it finds its reference in many Indian historical books.

Agriculture was the main source of livelihood in India and the use of naturally occurring matters for increased productivity, disease resistance and pest control was always in use, since time in memorial. The use of oil cakes, cow dungs, neem leaves, etc. is still practiced in India to ward off pests and used as preservatives. The use of chemical fertilizer for increased productivity started from late 1850s. In India, the first use of chemical fertilizer for increased agriculture productivity started from 1906 (Table 1).

The main advantages of organic farming in India rural economy are as follows;

- Organic fertilizers are completely safe and does not produces 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 molecule whereas, organic fertilizers does 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.
- It is estimated that there is around 2.4 million hectare of certified forest area for collection of wild herbs.
- The actual available area for cultivation of organic agriculture in India is much more than that is identified and certified so far.
- India has around 1,426 certified organic farms.
- India produces approximately 14,000 tons of output annually.
- It is estimated, that around 190,000 acres of land is under organic farming in India.
- The total annual production of organic food in India in the last financial year was 120,000 tons.

The Indian states involved in organic farming in India are as follows;

- Gujarat
- Kerala

- Karnataka
- Uttarachal
- Sikkim
- Rajasthan
- Maharashtra
- Tamil Nadu
- Madhya Pradesh
- Himachal Pradesh

Organic farming in India

Organic farming was practiced in India since thousands of years. The great Indian civilization thrived on organic farming and was one of the most prosperous countries in the world, till the British ruled it.

In traditional India, the entire agriculture was practiced using organic techniques, where the fertilizers, pesticides, etc., were obtained from plant and animal products. Organic farming was the backbone of the Indian economy and cow was worshipped (and is still done so) as a god. The cow, not only provided milk, but also provided bullocks for farming and dung which was used as fertilizers.

Shift to chemical farming in 1960s

During 1950s and 1960s, the ever increasing population of India and several natural calamities lead to a severe food scarcity in India. As a result, the government was forced to import food grains from foreign countries. To increase food security, the government had to drastically increase the production of food in India. The green revolution (under the leadership of M. S. Swaminathan) became the government's most important program in the 1960s. Large amount of land was brought under cultivation. Hybrid seeds were introduced. Natural and organic fertilizers were replaced by chemical fertilizers and locally made pesticides were replaced by chemical pesticides. Large chemical factories such as the Rashtriya chemical fertilizers were established.

Before the green revolution, it was feared that millions of poor Indians would die of hunger in the mid 1970s. However, the green revolution, within a few years, showed its impact. The country, which was greatly relied on imports for its food supply, reduced its imports every passing year. In 1990s, India had surplus food grains and once again became an exporter of food grains.

As time went by, extensive dependence on chemical farming has shown its darker side. The land is losing its fertility and is demanding larger quantities of fertilizers to be used. Pests are becoming immune requiring the farmers to use stronger and costlier pesticides. Due to increased cost of farming, farmers are falling into the trap of money lenders, who are exploiting them no end, and forcing many to commit suicide.

Both consumer and farmers are now gradually shifting back to organic farming in India. It is believed by many

Table 1. Main organic agricultural products of India.

S/No.	Organic products	S/No.	Organic products
1	Bajra-mustard-wheat	15	Dungarpur Pulses-cereals
2	Chilly	16	Bajra
3	Cereals-cereals	17	Mustard
4	Cereals-pulses	18	Til
5	Kholar	19	Wheat
6	Maize	20	Nagour Guar-cumin
7	Ginger	21	Guar-wheat
8	Soybean	22	Moong
9	Large cardamom	23	Mustard
10	Passion fruit	24	Ganganagar Cotton
11	Bhilwara Urd	25	Jaisalmer Bajra
12	Bharatpur Bajra and wheat	26	Jhunjhunu Pulses and wheat
12	Alwar Wheat and bajra	24	Banswara Maize
14	Cotton-grass	28	Jaipur Guar

that organic farming is healthier. Though the health benefits of organic food are yet to be proved, consumers are willing to pay higher premium for the same. Many farmers in India are shifting to organic farming due to the domestic and international demand for organic food. Further stringent standards for non-organic food in European and US markets have led to rejection of many Indian food consignments in the past. Organic farming, therefore, provides a better alternative to chemical farming.

According to the International Fund for Agriculture and Development (IFAD), about 2.5 million hectares of land was under organic farming in India in 2004. Further, there are over 15,000 certified organic farms in India. India therefore is one of the most important suppliers of organic food to the developed nations. No doubt, the organic movement has again started in India.

Organic food and farming systems are a promising and innovative means of tackling the challenges facing the WORLD in the area of agriculture and food production. Organic production has stimulated dynamic market growth, contributed to farm incomes and created employment for more than three decades now. At the same time it delivers public goods in terms of environmental protection, animal welfare and rural development. Furthermore, the innovations generated by the organic sector have played an important role in pushing agriculture and food productions generally towards sustainability, quality and low risk technologies.

The various benefits of organic farming for small farmers all over the world include high premium, low capital investment, ability to achieve higher premium in the market, and the ability to use traditional knowledge. According to a research conducted by the Office of Evaluation and Studies (OE), International Fund for Agriculture Development (IFAD), small farmers in Latin America, China and India can benefit drastically from organic

farming and will help in alleviating poverty in these countries. Organic farming is being groomed to end modern farmers' struggles resulting to various debts and farm land mortgages.

Organic farming refers to means of farming that does not involve usage of chemicals such as chemical fertilizers and chemical pesticides. Numerous small farmers have been practicing organic farming; however, since they are unaware of the market opportunities they are not able to reap the benefits of organic farming.

Given below are some of the advantages of organic farming for small farmers:

High premium: Organic food is normally priced 20 - 30% higher than conventional food. This premium is very important for a small farmer whose income is just sufficient to feed his/her family with one meal.

Low investment: Organic farming normally does not involve capital investment as high as that required in chemical farming. Further, since organic fertilizers and pesticides can be produced locally, the yearly costs incurred by the farmer are also low. Agriculture greatly depends on external factors such as climate, pests, disease. Furthermore, most of the small farmers are dependent on natural rain for water. Therefore in cases of natural calamity, pest or disease attack, and irregular rainfall, when there is a crop failure, small farmers practicing organic farming have to suffer less as their investments are low. (It should be noted that while shifting from chemical farming to organic farming, the transition might be costly)

Less dependence on money lenders: Many small farmers worldwide commit suicide due to increasing debt.

Since chemical inputs, which are very costly, are not required in organic farming, small farmers are not dependent on money lenders. Crop failure, therefore, does not leave an organic farmer into enormous debt, and does not force him to take an extreme step.

Synergy with life forms: Organic farming involves synergy with various plant and animal life forms. Small farmers are able to understand this synergy easily and hence find it easy to implement them.

Traditional knowledge: Small farmers have abundance of traditional knowledge with them and within their community. Most of this traditional knowledge cannot be used for chemical farming. However, when it comes to organic farming, the farmers can make use of the traditional knowledge. Further, in case of organic farming, small farmers are not dependent on those who provide chemical know-how.

ORGANIC FOOD CONSUMPTION IN INDIA

Organic food consumption in India is on the rise

Some people believe that organic food is only a “concept” popular in the developed countries. They think that when it comes to organic food, India only exports organic food and very little is consumed. However, this is not true. Though 50% of the organic food production in India is targeted towards exports, there are many who look towards organic food for domestic consumption.

The most important reason for buying organic food was the concern for the health of children, with over 66% parents preferring organic food to non organic food. Though organic food is priced over 25% more than conventional food in India, many parents are willing to pay this higher premium due to the perceived health benefits of organic food.

The increase in organic food consumption in India is evident from the fact that many organic food stores are spurring up in India. Today (2006) every supermarket has an organic food store and every large city in India has numerous organic food stores and restaurants. This is a huge change considering that the first organic food store in Mumbai was started in 1997. What do Indian organic food consumers prefer? The pattern of organic food consumption in India is much different than in the developed countries. In India, consumers prefer organic marmalade, organic strawberry, organic tea, organic honey, organic cashew butter and various organic flours. However, the Indian organic food consumer needs education. There are many consumers who are unaware of the difference between natural and organic food. Many people purchase products labeled as Natural thinking that they are Organic. Furthermore, consumers are not aware of the certification system. Since certification is not compulsory for domestic retail in India, many fake organic

products are available in the market.

Organic food exports from India

Organic food exports from India are increasing with more farmers shifting to organic farming. With the domestic consumption being low, the prime market for Indian organic food industry lies in the US and Europe. India has now become a leading supplier of organic herbs, organic spices, organic basmati rice, etc.

The exports amount to 53% of the organic food produced in India. This is considerably high when compared to percentage of agricultural products exported. In 2003, only 6 - 7% of the total agricultural produce in India was exported (Food Processing Market in India, 2005).

Exports is driving organic food production in India

The increasing demand for organic food products in the developed countries and the extensive support by the Indian government coupled with its focus on agri-exports are the drivers for the Indian organic food industry.

Organic food products in India are priced about 20 - 30% higher than non-organic food products. This is a very high premium for most of the Indian population where the per capita income is merely USD 800. Though the salaries in India are increasing rapidly, the domestic market is not sufficient to consume the entire organic food produced in the country. As a result, exports of organic food are the prime aim of organic farmers as well as the government.

The Indian government is committed towards encouraging organic food production. It allocated Rs.100 crore or USD 22.2 million during the Tenth Five Year Plan for promoting sustainable agriculture in India.

APEDA (Agricultural and Processed Food Export Development Authority) coordinates the export of organic food (and other food products) in India. The National Programme for Organic Production in India was initiated by the ministry of commerce. The programme provides standard for the organic food industry in the country. Since these standards have been developed taking into consideration international organic production standards such as CODEX and IFOAM, Indian organic food products are being accepted in the US and European markets. APEDA also provides a list of organic food exporters in India.

Organic food costs in India are expected to decrease driving further exports in future

Organic food production costs are higher in the developed countries as organic farming is labor intensive and labor is costly in these countries. However, in a country like India, where labor is abundant and is relatively cheap, organic farming is seen as a good cost effective

Table 2. Export performance of organic food products from India.

S/No	Organic Food	Sales (tons)
1	Tea	3000
2	Coffee	550
3	Spices	700
4	Rice	2500
5	Wheat	1150
6	Pulses	300
7	Oil Seeds	100
8	Fruits and Vegetables	1800
9	Cashew Nut	375
10	Cotton	1200
11	Herbal Products	250
	Total	11,925

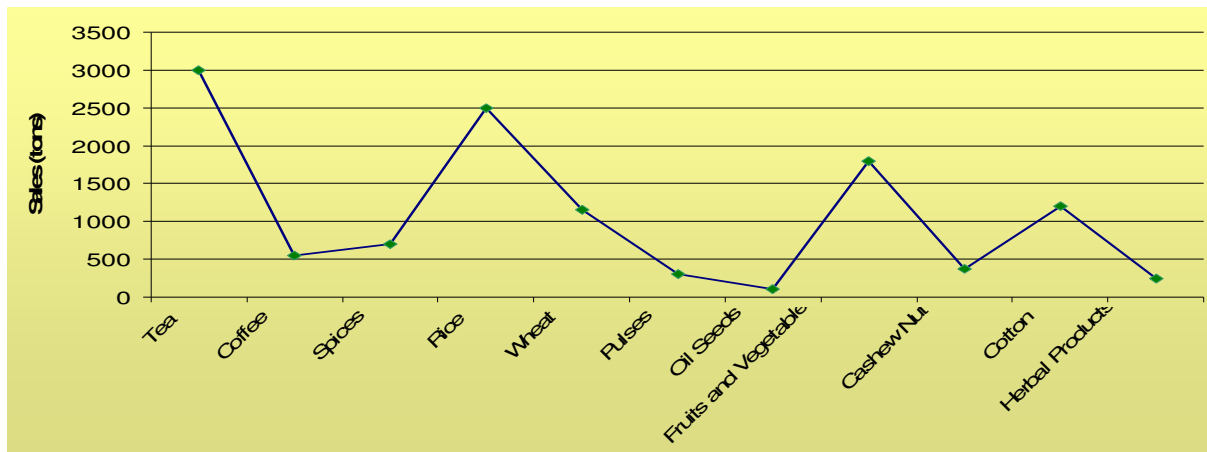


Figure 1. Export performance of organic food products from India.

solution to the increasing costs involved in chemical farming. Currently most of the organic farmers in India are still in the transition phase and hence their costs are still high. As these farmers continue with organic farming, the production costs are expected to reduce, making India as one of the most important producers of organic food (Table 2 and Figure 1). Organic food products exported from India include the following:

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

Conclusion

Organic food production costs are higher in the developed countries as organic farming is labor intensive and labor is costly in these countries. However, in a country like India, where labor is abundant and is relatively cheap, organic farming is seen as a good cost effective solution to the increasing costs involved in chemical farming. The increasing demand for organic food products in the developed countries and the extensive support by the Indian government coupled with its focus on agri-exports are the drivers for the Indian organic food industry.

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