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Organic Farming: Need of Today

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Abstract

Green Revolution in the post-independence era has shown path to developing countries for self-sufficiency in food but sustaining agricultural production against the finite natural resource base demands has shifted from the "resource degrading" chemical agriculture to a "resource protective" biological or organic farming. Food quality and safety are the two important factors that have gained ever-increasing attention in general consumers. Conventionally grown foods have immense adverse health effects due to the presence of higher pesticide residue, more nitrate, heavy metals, hormones, antibiotic residue, and also genetically modified organisms. Therefore, Organic farming through sustainable agriculture meets not only the food requirements of present generation in an environment friendly way but also the requirements of future generations and maintains our environment.

Keywords: Organic farming, Crop residues, Vermicompost, Panchgavya

Introduction

The term 'organic' was first coined by Northbourne, in 1940, in his book entitled 'Look to the Land'. However, the concept of organic farming is not new to the Indian farming community as it is successfully practiced in diverse climates, particularly in rain fed, tribal, mountain and hill areas of the country. Much of the forest produce of economic importance, like herbs and medicinal plants, by default come under this category (Singh, 2007). Green revolution technologies such as greater use of synthetic agrochemicals like fertilizers and pesticides, adoption of nutrient-responsive, high-yielding varieties of crops, greater exploitation of irrigation potentials etc. has boosted the

production output in most cases. Therefore, for sustaining the productivity of the crop, maintaining the soil health and healthy ecosystem, there is need for adoption of an alternative farming system, may be the Organic Farming.

Food and Agriculture Organization (FAO) suggested the following: "Organic agriculture is a unique production management system which promotes and enhances agro-ecosystem health, including biodiversity, biological cycles and soil biological activity, and this is accomplished by using on-farm agronomic, biological and mechanical methods in exclusion of all synthetic off-farm inputs".

National Program on Organic Production (NPOP) India described Organic Farming that "Organic Farming is a system of farm design and management to create an eco-system which can achieve sustainable productivity without the use of artificial external inputs such as chemical fertilizers and pesticides."

Sikkim establishes an outstanding model of how other Indian states and countries worldwide can magnificently upscale agro-ecology. Sikkim turned to 100 per cent organic state in January 2016. Hence, the Sikkim state gets "***Oscar for Best Policies***" from the UN. Organic farming is very conducive to lessen the risk of human health.

Table.1 Major organic crops exported from India

Sl. No.	Type of commodities	Products
1.	Spices	Cardamom, black pepper, Ginger, turmeric, nutmug, chilli, clove and vanilla 2
2.	Plantation	Tea, coffee, cocoa
3.	Pulses	Red gram, black gram
4.	Fruits	Mango, banana, pine apple, passion fruit, orange, cashew
5.	Nut	Walnut
6.	Vegetables	Okra, brinjal, onion, tomato, potato
7.	Oil seeds	Sesame, castor, sunflower
8.	Others	Cotton, herbal extracts

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Source (APEDA)

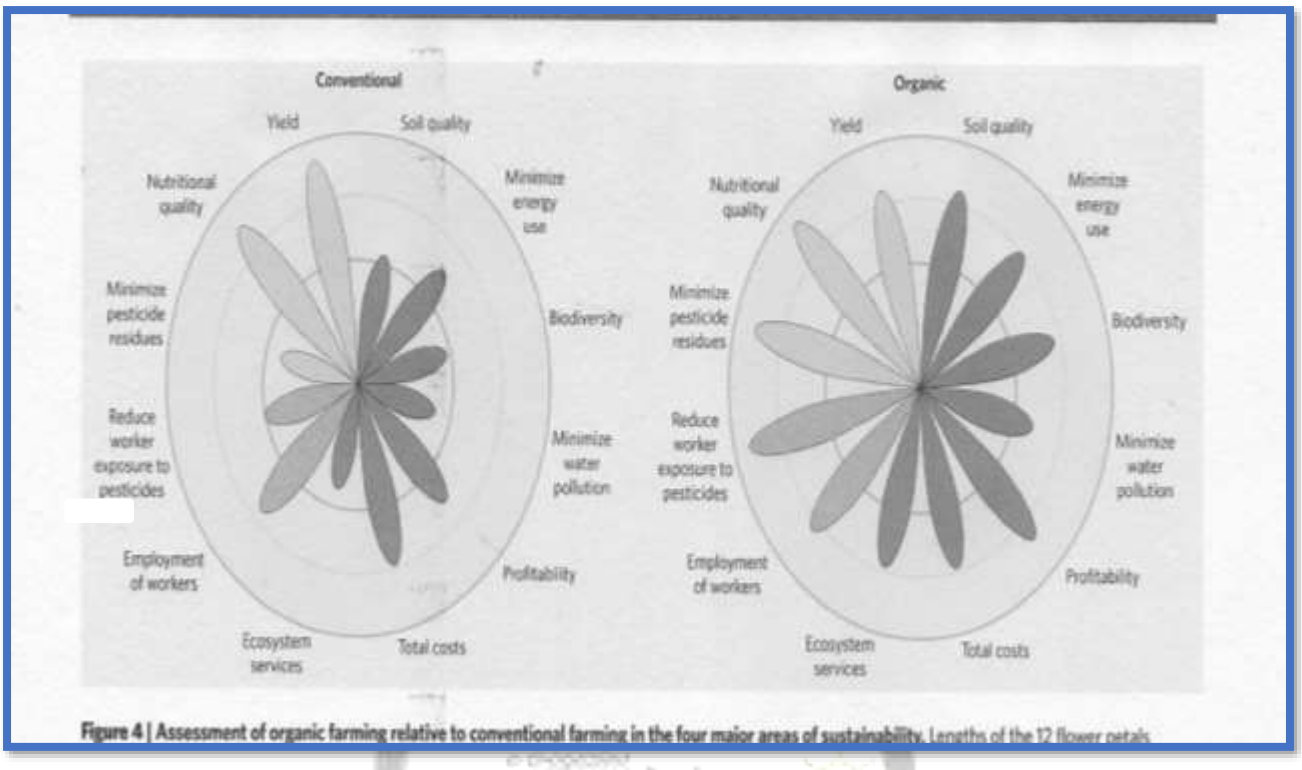

Figure 4 | Assessment of organic farming relative to conventional farming in the four major areas of sustainability. Lengths of the 12 flower petals

Components of organic farming

Organic farming consisting the components are biological nitrogen fixation, crop rotation, crop residues, biopesticides, biogas slurry etc. Vermicomposting has emerged as a major component in organic farming which is very effective in enhancing soil fertility and growth of crops in a sustainable way.

The various components of organic farming are:

Crop rotation: For the sustainable agriculture, crops rotation practicing on the same land over a period of two years or more for maintaining soil fertility and control of insects, weed and diseases. The legumes grow after no-legume in rotation improves soil fertility.

Crop Residue: India has great potential of using residues of crops and straw of cereals and pulses in recycling of nutrients during organic farming. During decomposition of Crop residues insitu in the

field by microorganisms produces various organic substances which improve physico-chemical properties of soil and crop yields.

Organic manure: The organic manure is obtained from biological sources (plant, animal and human residues) helps in increasing crop growth directly by improving the uptake of humic substances and indirectly promoting soil productivity by increasing availability of major and minor plant nutrients through soil microorganisms.

Composting, is one of the oldest techniques used for stabilizing natural wastes and biological fertilization of the soil. The main objective of this practice is to obtain a stable, chemically and biologically rich product with micro and macro nutrients and also maintain the harmony with environmental nature.

Waste materials:

1. Industrial waste: The Industrial by products such as spent wash, coir waste, carpet waste, press mud, fly ass and other treated effluents can be used as manure.

2.Domestic waste: This is the refuses of organic materials obtained from house hold.

3. Municipal and Sewage waste: It is an important component of organic waste.

5. Biofertilizers: Biofertilizers are microorganisms that have the capability of increasing the fertility of soil for example by fixing atmospheric nitrogen and through mycorrhizal fungi and phosphate solubilizes, eco-friendly and sustainable way of achieving soil fertility. Biofertilizers have biological nitrogen fixing organism which help them in establishment and growth of crop plants and trees, enhance biomass production and grain yields. Biofertilizer is a cost-effective renewable energy source and plays a crucial role in reducing the inorganic fertilizer application and at the same time increasing the crop yield besides maintaining soil fertility.

6. Bio-pesticide: Biopesticides are of plant origin and include plant products like alkaloids, phenolics, terpenoids and some secondary chemicals. They are biologically active against insects, fungi, nematodes affecting their behaviour and physiology. Commonly known bio-insecticides are Pyrethrum, Nicotine, Neem, Margosa, Rotenone etc.

7. Vermicompost: Vermicompost is organic manure or compost produced by the use of earthworms that generally live-in soil, eat organic matter and excrete it in digested form. These are rich in macro and micronutrients, vitamins, growth hormones and immobilized microflora essential for plant growth.

Biodynamic Among organic farming systems, Biodynamic is also prevalent in India. Biodynamic agriculture appears to be one of the sound alternatives. It is based on systematic and synergistic harnessing of energies from cosmos, earth, plant and cow.

8. Panchgavya: Panchgavya is a special preparation made from five by-products of cow along with certain other ingredients, incubated for specific duration in an earthen or plastic container. Ingredients required for preparation of Panchgavya are cow dung 5 kg, cow urine 10 lit, cow milk 3 lit, cow curd 2 lit, cow ghee 1 kg, sugarcane juice 3 lit, tender coconut water 3 lit, ripe banana 12 and toddy (if available) 2 lit. In general, spray of 3 per cent (3kg100-1 L of water) solution has been found most effective. It is advisable to filter the mixture with muslin cloth and spray with high volume sprayer.

The concept of sustainable agriculture integrates three main goals— environmental health, economic profitability, and social and economic equity. India has converted 6.0

million ha of cultivated land into organic and another 1.17 million ha are under conversion (Yadav, 2012). Organic cultivation is particularly suitable for a country like India termed as Javik **Krishi** with a huge population of small farmers who still use traditional methods of farming with few agricultural inputs. At present, Global figures on growth of this sector are impressive and has taken only 1 to 2 per cent of agricultural sector but its growth is exponential (15 -25%). In a Country like India, it is important to note is that the first initiatives in organic cultivation were taken by farmers NGOs and the private sector agri-business players.

Benefits of organic farming

The benefits provided by organic farming are:

1. It maintains health of environment by reducing pollution.
2. It helps in increasing agricultural production in a sustainable way.

3. It helps in improving the soil health.
4. Agriculture products obtained from organic farming are better in quality. (Bigger in size, flavor, size & aroma)
5. Water holding capacity of the soil is increased through organic farming.
6. It improves the availability of nutrients required and essential for plants. (Macro nutrients & Micro- nutrients)
7. Organic farm products are usually of better size, flavor, aroma (Quality)
8. Underground water of the area under organic farming is free of toxic chemicals.
9. Vermicomposting brings down waste bulk density.
10. Vermicomposting has hormone like substance auxins which increases plant growth.
11. Maintains C:N ratio in the soil and increases the fertility and productivity of the soil.
12. Increase in biological activity makes lower depth nutrients availability possible.
13. Improves texture & structure of soil.

Major problems in marketing Indian organic products

1. Price expectations are too high in relation to quality
2. Low consistency of quality
3. Slow shipment, restrictions for importing Indian organic products
4. Time consuming and complicated paper work while dealing with export authorities; the poor customer service from the Indian traders after sales is the major problem in export marketing.
5. Lack of proper marketing network a marketing implementation
6. Less effort to develop domestic markets Scope and modes to promote organic farming.
7. Lack of well- defined organic market and marketing channel.
8. No ensured premium price the likeliness to increases the area under organic farming is wider.