

Organic Agriculture in India: A Summary

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Abstract – The advancement of technology and development in agriculture has enabled our country to provide food security. But every coin has two sides; this all advancement in agriculture has directed to imbalance our ecosystem. Under such condition, serious concerns have been expressed regarding the use of heavy chemicals, pesticides and fertilizers in agriculture in terms of their negative impact on the human health and the environment. The phenomenon of ‘Organic Agriculture’ is the only solution to nurture the land and to regenerate the soil by going back to our traditional method of farming *i.e.*, free from chemicals, pesticides and fertilizers. This is a possible step for sustainable development by choosing not to use chemicals, synthetic materials, pesticides and growth hormones to produce high nutritional quality food and in adequate quantity. This article provides an overview of organic agriculture, its present scenario in India, the main principles of organic agriculture and constraints faced in practicing organic agriculture in India.

Keywords – Development, Fertilizers, Heavy Chemicals, Organic Agriculture and Pesticides.

I. INTRODUCTION

Dr. A.P.J. Abdul Kalam stated “Organic agriculture, a holistic system that focuses on improvement of soil health, use of local inputs and relatively high intensity use of local labor, is an admirable fit for dry lands in many ways and the dry land offer many benefits that would make it relatively easy to implement.”

Agriculture facilitates to meet the indispensable needs of human civilization by providing food, clothing, shelter, medicine and recreation. Hence, agriculture is the most important venture in the world. India’s agricultural sector is still very important and considered to be the backbone of Indian economy. India has made significant advances in agricultural production in recent decades, including the introduction of high-yield seed varieties and increased use of fertilizers [1]. In the 1960s, the Green Revolution allowed developing countries, like India, to overcome continual food scarcity by producing more food and other agricultural products by using high-yielding varieties of seeds, modifying farm equipment, and substantially increasing use of chemical fertilizers. As the accessibility of land is declining day by day, application of fertilizers and pesticides has become essential to continue the production of major crops to meet the food grain demand. This allowed growth and sustainability of food grains but at the same time leads to increase in the use of chemical fertilizers and pesticides which cause serious damage to the environment and human health.

Reference [2] also reported that Indians take about 40 times more pesticides through food items than the average American intake, although the small amounts of pesticides

that remain in the food supply will cause no immediate reaction but could cause health problems if routinely consumed over a long period. The commercialization of agriculture led to three kinds of changes, namely: economic changes, socio-cultural changes and environmental changes. All these changes have profound effects on human health such that the people are battling health problems, including a noticeable rise in cancer cases, reproductive health problems, mental retardation and kidney ailments [3]. An answer to this havoc is the organic agriculture, an environmentally friendly agricultural approach which ultimately leads to proper human health.

II. ORGANIC AGRICULTURE

Organic agriculture is a holistic production and management system which is supportive of the environment, health and sustainability [4]. Organic agriculture is developing rapidly and today 172 countries of the world produce organic food. As per the estimates in 2014, there were 43.7 million hectares of organic agricultural land and the countries with the most organic agricultural land are Australia (17.2 million hectares), Argentina (3.1 million hectares), and the United States (2.2 million hectares) [5]. The Organic farming system in India is not new and is being followed from ancient time. As per the definition of the United States Department of Agriculture (USDA) “*organic farming is a system which avoids or largely excludes the use of synthetic inputs (such as fertilizers, pesticides, hormones, feed additives etc.) and to the maximum extent feasible rely upon crop rotations, crop residues, animal manures, off-farm organic waste, mineral grade rock additives and biological system of nutrient mobilization and plant protection*” [6]. The recognition of organic farming is progressively increasing and is now practiced in almost all countries of the world. Further, they also mentioned that the fast changing trend from chemical based agriculture to organic and eco-friendly system of farming is being a major concern at the national and global levels. According to the latest survey, India accounts 5.2 million hectares of organic land and 6,50,000 organic producers. India has the largest number of organic producers in the world [7].

On the contrary, the Green revolution has been the greatest success story and has brought a spectacular increase in production and productivity in the country. But after initial success, the scenario has changed today with the quest of short term gains without due consideration of long term sustainability resources, particularly soil, water and the environment have all now overstrained, and are getting increasingly depleted as reported by reference [8]. Now the concern is to sustain the agricultural and particularly crop

production and productivity and take this agricultural sector to the frontier without damaging the resources and the environment. This results in an alternative system of an optimal, balanced, efficient and scientific management of land, water, biodiversity and external inputs. Hence, the system organic agriculture comes into the scenario. The significant element can be addressed by the fact that the Prime Minister Shri Narendra Modi declared Sikkim as the India's first fully organic state by implementing organic practices on agricultural land in 2016.

In the current scenario, food consumption practice is changing among the consumers and now they want to opt food which is free of all synthetic chemicals, fertilizers, and pesticides, *i.e.*, they want to consume organic food which is not only sustainable for health but also environmental friendly. But, organic products are not so much popular among consumers, which in turn lead to lower acreage of organic produce by farmers and high market prices of organic food. There is a need to create awareness among producers and buyers regarding promotion of organic agriculture.

III. MAIN PRINCIPLES OF ORGANIC AGRICULTURE

The main principles of organic agriculture are the followings:

- *Principle of Health:* Healthy soil, plants, animals, humans = a healthy planet.
- *Principle of Ecology:* Emulating and sustaining natural systems.
- *Principle of Fairness:* Equity, respect and justice for all living things.
- *Principle of Care:* For the generations to come.

IV. ORGANIC AGRICULTURE IN INDIA

The National Program for Organic Production (NPOP) was implemented and promoted by Agricultural and Processed food products, Export Development Authority (APEDA) in 2001 for enhancing organic agriculture practices. The standards made by NPOP have been developed under guidelines of international organic production standards such as CODEX and International Federation of Organic Agricultural Movements (IFOAM). The NPOP standards for production and accreditation system have been recognized by the European commission and Switzerland as equivalent to their country standards. Similarly, USDA has recognized NPOP conformity assessment procedures of accreditation equivalent to that of the US. With these recognizes, Indian organic products duly certified by the accredited certification bodies of Indian are accepted by the importing countries [9]. Besides this, the Ministry of Agriculture also started various promotion schemes for small farmers. Fifteen Indian states have their own policy of organic farming since 2004, which is a good indication for Indian agriculture [10]. Reference [11] revealed that 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 of the Indian government coupled with its focus on Agri-exports are the drivers for the Indian organic food industry. However, the market of India is not flourished with the organic food products for consumers as compare with the western countries like Europe, U.S. etc.

By scrutinizing the report of *GOI, Ministry of Agriculture & Farmers Welfare, 2015-16* it was found out that the certified cultivated area under organic farming has grown from 4.55 lakh ha in 2009-10 to 7.23 lakh ha in 2013-14, with around 6 lakh farmers practicing it [12]. But, still, the total area under organic farming is insignificant compared to the net sown area of 140 million hectares. In terms of exports also, exports of organic food at about 1.6 lakh tonnes and at an estimated value of USD 220 million is less than 1 per cent of global exports. Against this backdrop, to provide a major fillip to organic farming in India, the existing components of organic farming under the NMSA (National Mission for Sustainable Agriculture) have been put together under a new programme called "*Paramparagat Krishi Vikas Yojana*". The programme envisages development of 10,000 organic clusters and provides chemical-free inputs to farmers and increase the certified area by 5 lakh hectare within a period of 3 years. Under this, every farmer in a cluster will be provided an assistance of Rs. 50,000 per hectare in 3 years towards conversion to and adoption of organic farming and towards market assistance.

V. CONSTRAINTS IN PRACTICING ORGANIC AGRICULTURE

The major problems faced while practicing organic agriculture is:

- a) *Lack of Awareness:* Lack of awareness among the government policy makers and the practicing farmers is the major cause of restricting the growth of organic agriculture. The lack of awareness among the consumers about organic food products also holds back the growth.
- b) *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 [13].
- c) *Shortage of Manure:* Organic manure (Biomass) availability is less than the required quantity also the available nutrient is less than the conventional manure.
- d) *Less Yield Production:* The production availability of organic farms is less as compared with farm producing products by using conventional methods.
- e) *High Input Cost:* The costs of the organic inputs are higher than those of industrially produced chemical fertilizers and pesticides, including other inputs used in

the conventional farming system.

- f) *Inadequate Supporting Infrastructure*: In spite of the adoption of the NPOP (National Programme on Organic Production) during 2000, the state governments are yet to formulate policies and a credible mechanism to implement them. There are only four agencies for accreditation and their expertise is limited to fruits and vegetables, tea, coffee and spices. The certifying agencies are inadequate.

VI. SUGGESTIONS AND RECOMMENDATION

- The farmers' should be made aware with the scientific information about organic agriculture.
- Government should provide subsidies in organic produce to the farmers and facility of easy credit with lower rate of interest.
- Higher prices should be determined by the government for organic produce than the conventional produce.
- Agriculture universities should encourage the research in the field of organic farming.
- Government, NGO's and extension workers should organize various workshops, seminars, conferences, etc. with the help of subject matter specialist for farmers.
- Private companies should invest in the project of producing organic food products free from harmful chemicals.
- At an individual level, should promote the use of organic produce by going for organic agriculture in their kitchen garden, buying organic products available in the market.

VII. CONCLUSION

Organic agriculture is a holistic food production system works with the sustainable use of locally available natural resources. The need is to adopt a comprehensive approach for the promotion of organic agriculture by taking cooperation of all stakeholders, environmental friendly technologies, marketing infrastructure and financial support for quality and quantity organic food production. An environmentally sustainable system of agriculture like organic agriculture will be able to maintain a resource balance, avoid over exploitation of resource, conserving soil nutritional quality and s health, and biodiversity.

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