



Sustainable Agriculture Initiatives through Organic Farming in India

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ABSTRACT

This study delves into the realm of sustainable agriculture initiatives, focusing on the context of organic farming in India. Recognizing the pressing challenges posed by conventional agricultural practices, the research aims to address the research problem of promoting sustainable agriculture and elucidate its significance in the Indian agricultural landscape. The literature review unveils the environmental, economic, and social ramifications of conventional farming, emphasizing the urgency of exploring sustainable alternatives. Organic farming emerges as a promising solution, aligning with principles of environmental stewardship, improved soil health, and reduced reliance on synthetic inputs. The proposed approach employs a mixed-methods research design, combining quantitative surveys and qualitative interviews to comprehensively assess the current state of organic farming in India. The study explores adoption rates, challenges faced by farmers, and the impact on environmental and socio-economic indicators. Government policies and support mechanisms are also scrutinized to understand their role in fostering organic farming practices. This research aspires to contribute empirical evidence and insights that inform decision-making and policy formulation, facilitating the transition towards sustainable agriculture in India. By elucidating the feasibility and effectiveness of organic farming initiatives, this study endeavors to guide stakeholders in promoting environmentally conscious and socially responsible nation across the country.

Keywords: Biodiversity, Crop Rotation, Environment, Organic farming, micro-organism.

1. INTRODUCTION

The desire of human beings to get more and more from natural resources results in degradation of biodiversity and different portions of the environment. Sustainability is much more important at present to save the natural resources of the planet. Sustainable agriculture is nothing but a successful supervision of resources to satisfy the changing human requirements by enhancing the quality of environment and conserving natural resources. Davinder Singh, et al (2018) defined “ Organic farming as a system of production that trusts on animal manures, organic wastes, crop rotations, legumes and aspects of biological pest control that are not strange to agriculture systems including the traditional agricultural practices. However, uses of pesticides and fertilizers impede the growth and development of organic production system. It is the management production system that promotes and improves biodiversity, biological cycles and biological activity of the soil. Thus, making the soil capable of supplying all the essential nutrients to the crop for its proper growth and development.

Organic farming is a production system which avoids or largely excludes the use of synthetic fertilizers and growth regulators. To the maximum extent, viable organic farming systems rely on crop rotations, crop residues, animal manures, legumes, green manures, off farm organic wastes and aspects of biological pest control. These practices result in maintaining soil productivity and in supplying plant nutrients and controlling insect pest diseases and weeds. Thus, the organic farming implies recycling of waste and residue to the local soil itself, replenishing the nutrients exhausted from the soil during the crop growth by encouraging the development of microorganisms. So, it helps in maintaining soil health by balancing soil moisture and soil aeration as well as in ensuring soil fertility by firmly binding the nutrient elements in compound organic molecules.

1.1 Scope and significance of the study

- I. To produce crop with high nutritional value and
- II. To maintain and improve long term fertility and sustainability of the farm land.

There are varied opinions regarding the relevance of organic farming for India. The first one simply dismisses it as a fad or craze. The second category, which includes many farmers and scientists, opines that there are merits in organic farming, but we should proceed cautiously considering the national needs and conditions in which Indian agriculture functions. Organic farming is one of the several approaches found to meet the objectives of sustainable agriculture. Many techniques used in organic farming like inter-cropping, mulching and integration of crops and livestock are not alien to various agriculture systems including the traditional agriculture practiced in old countries like India. However, organic farming is based on various laws and certification programmes, which prohibit the usage of almost all synthetic inputs, and health of the soil is recognised as the central theme of the method (Manisha Gaur, 2016). Adverse effects of modern agricultural practices not only affect the farm, but also on the health of all living things. Application of technology, particularly in terms of the use of chemical fertilizers and pesticides all around the globe has persuaded people to think aloud.

2. OBJECTIVES

- i. To understand the need for organic farming in India, and
- ii. To analyse the problems and the challenges in introduction of organic farming in India.

2.1 Need of organic farming in India

- i. To Achieve sustainability of natural resources on the one hand, and
- ii. To exploit the growing global market for organic food on the other.

With the increase in population, there is a compulsion to stabilize agricultural production as well as to increase it further in sustainable manner. The scientists have realised that the 'Green Revolution which started in the mid 1960's has reached a plateau and is now sustained with diminishing returns. Thus a natural balance needs to be maintained at all cost for existence of life and property. The obvious choice for that would be more relevant in the present era, when these agrochemicals which are produced from fossil fuel are not renewable and are diminished in availability. It may also cost heavily on our foreign exchange in future.

2.2 Major Problems and Constraints for Organic Farming in India

Agriculture is one of the oldest human activity ever. Since the beginning, it has greatly influenced the landscape management and the environment when people begun to cultivate the soil, grow plants and domesticize animals. In the 21th century, intensified agriculture begun to affect the environment, treat badly the animals, decrease food quality and degrade farmer's social security's and community health leading to the emergence of environmentally friendly agriculture. It is quite natural that a change in the system of agriculture in a country of more than a 1.2 billion people should be a well thought out process, which requires utmost care and caution. There may be several impediments on the way. An understanding of these problems and prospects will go a long way in decision making.

2.3 Lack of Awareness of the people

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.

2.4 Marketing Problems

It is imperative that even before the cultivation of organic crops, their marketability and a fair price over the conventional produce need to be assured. The 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.

2.5 Shortage of Bio-mass and Biogas

Many experts and well-informed farmers are not sure about the availability of all nutrients in required quantities in the organic materials. Even if this problem is surmounted, they are of the view that the available organic matter is not simply enough to meet the requirements

2.6 Inadequate Infrastructure facilities

In spite of adopting NPOP during 2000, the state governments are yet to formulate the 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 found to be inadequate.

2.7 High Cost of production

The small and the marginal farmers in India have been practicing a sort of organic farming in the form of the traditional farming system. They use local or their own farm renewable resources and carry out agricultural practices in an ecologically friendly environment. However, the costs of organic inputs are found to be higher than the industrially produced chemical fertilizers and pesticides including other inputs used in the conventional farming system.

2.8 Marketing Problems

Bio-fertilizers and bio-pesticides are yet to become popular in our nation. A paucity is experienced in marketing and distributing network since the retailers are not interested in these products as the demand for them is far from encouraging. Their problems are compounded due to erratic supplies and lack of awareness among the cultivators.

2.8 Low Yields and low profit

In several cases, the farmers experience some loss in their yield since they discard synthetic inputs while moving from conventional farming method to organic one. Restoring full biological activity by promoting insect population, nitrogen fixation from legumes, pest suppression and fertility problems will be time taking process and therefore there will be a reduction in the yield rates during the transition period. It will take years to make organic production possible on the farm in a successful manner.

3. THE SUGGESTIONS AND RECOMMENDATION

Increased R&D will be instrumental in predicting the future resource crunch. At present, most of the chemicalized fertilizers used in India are derived from fossil fuels. With limited supply and intense ongoing demand, it will be very much difficult for farmers to keep pace with these prices. Since organic farming is not dependent on chemicalized inputs, it minimizes the expenses incurred by farmers and offers a logical, sustainable and viable solution for years to come. In the event of focusing more on research and development in organic farming, it will be very much helpful to the farmers who incur more and more expenses due to increased price of chemical fertilizers. A part of this Research and Development should also focus on harnessing traditional knowledge. In all fairness, one can confidently say that the traditional Indian farming practices got evolved and advanced and became very much localized, but it was rarely documented. All traditional farming methods were adapted to their particular regions and climatic conditions allowing for the growth of sturdier plants and produce. If we can tap this wisdom and make it easily accessible, farmers can learn from each other about controlling pests and diseases as well as acquire a sound knowledge regarding the kind of seeds which will grow well in a particular area. Documenting the traditional knowledge and disseminating the same through in person or tech tools to farmers with smaller landholdings will have a profound effect in adopting best practices. The researchers can also spread their knowledge to farmers with smaller landholdings around the world and help them make better decisions for growing food.

4. CONCLUSION

The organic farming is a boon to mankind and it definitely contributes in sustainable growth of rural population. They not only get the higher yield of their crops, but also get alternative means of natural energy in the form of domestic gas, bio electricity etc. The critical effects of modern agriculture have not appeared all of a sudden and repetitive use

of agro-Chemicals were not predictable during the time of their introduction. Food security sustainability solution lies in the moderate approach practised by farmers and the constantly increasing demand for organic foods. Organic farming must co- exist with conventional modes of agriculture for specific crops, specific regions particularly where the state is at an advantageous position, but of course, with the government support in certification, crop insurance and development of market infrastructure for organic produce. As the movement is easily spreading up and organic farming is attracting worldwide attention, there is a potential for exporting organic agricultural produce and therefore this opportunity has to be seized with both hands so as to increase our foreign exchange.

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