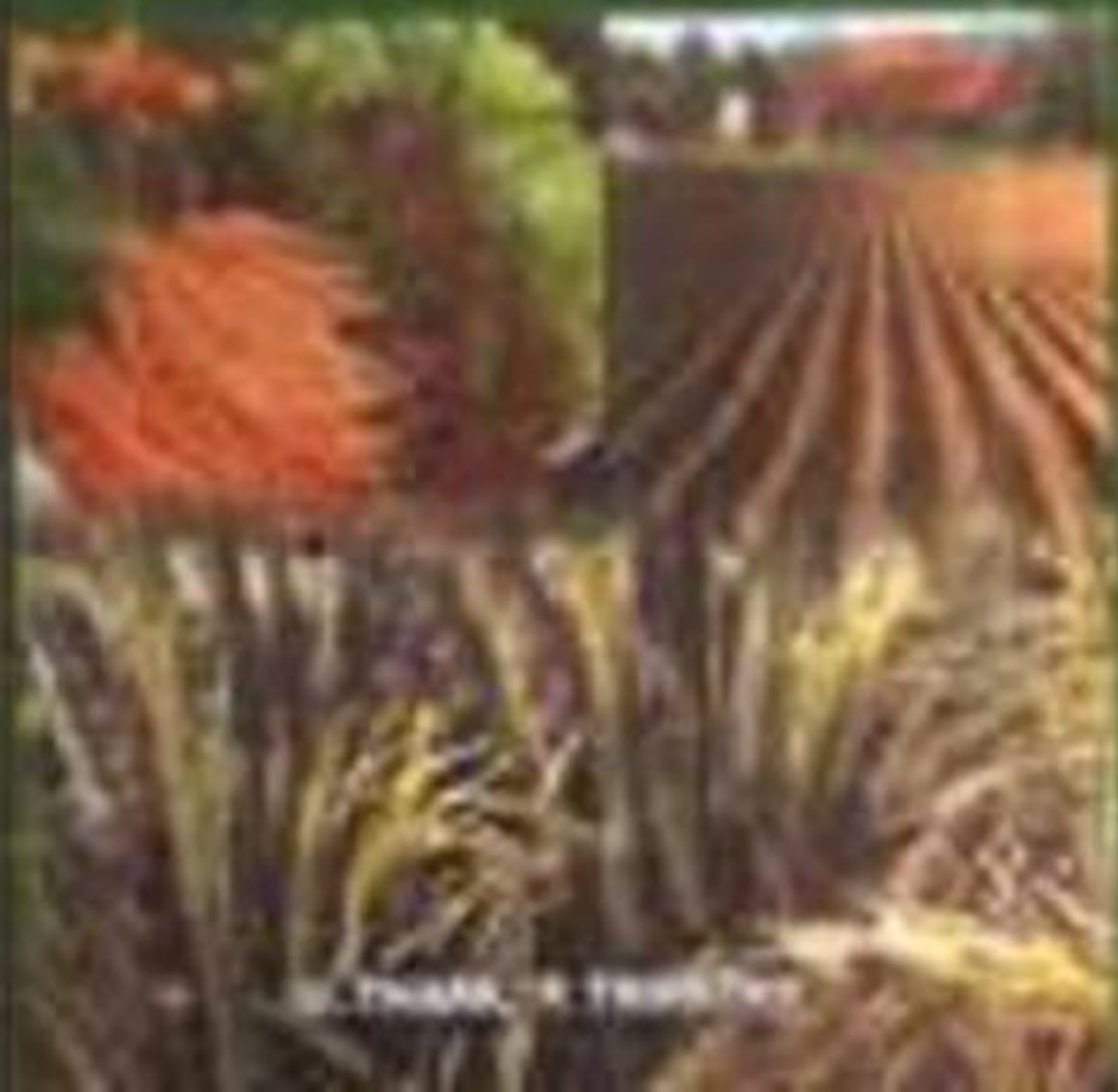
ORGANIC FARMING IN INDIA

Problems & Prospects



2nd Edition

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PROBLEMS AND PROSPECTS

(Incorporates ICAR Recommended Sysllabus)

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PREFACE

The book entitled "Organic Farming in India : Problem and Prospects" has been written keeping in view the condition of the country and its gaining importance as it gives intritious food to human beings, there by improves quality of life. And for sustaining the productivity of the crop, maintaining the soil health and healthy ecosystem. There is need for use of adoption of an alternative farming system which may be organic farming.

The information in the book has been distilled from various sources: like several reports, important reviews and research papers, personal communication, books, seminars and symposiums, *etc.*, from where the matter have been gathered. However, a few books on the subject are available but have scattered information and efforts have been made to compile the consolidated latere and detail information in one script on the various aspects. We sincerely acknowledge the contribution of authors and publisher whose publication are used while preparing this manuscript.

The book has been written for the benefit of all those who are interested in increasing their knowledge and understanding about detail valuable information on organic farming emanating from the above concerted efforts.

We, hope that the information contained in it will be of immense value to the farming community, extension workers involved in promoting organic farming, the students interested in learning the basic ideas of organic farming and research workers.

The authors would welcome suggestions from the readers for further improvement of the text.

U.THAPA
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CONTENTS

S. No.	Particulars	Page No.
1.	Introduction	7
2.	Concept of Organic Farming	9
3.	Definition of Organic Farming	10
4.	Essential Characteristics of Organic Farming	15
5.	Principles of Organic Farming	17
6.	Objectives of Organic Farming	19
7.	Options in Organic Farming	20
8.	Benefits of Organic Farming	22
9.	Knowledge Required for Success of Organic Farming	24
10.	Components of Organic Farming	26
11.	Latent needs of Organic Farming in India	79
12.	Scientif Feasibility and Validity of Organic Farming in India	81
13.	Organic Farming in India: Present Status	93
14.	Certification and Legislation of Organic Products in India	100
15.	Marketing of Organic Farming Produce in India	115
16.	Constraints / Limitations/ Issues of Organic Farming in India	117
17.	Strategies for Promotion of Organic Farming in India	127
18.	Tips for Success of Organic Farming	143
19.	Promotions of Organic Farming in India	146
20.	Feasibility of Organic Farming of Vegetable Crops in India	150
21.	Conclusion	162
22.	References	165
	Addresses of Organic Certification Agenices	183
	Subject Index	186

1
INTRODUCTION

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. However, continuous use of these high energy inputs indiscriminately is leading to decline in production and productivity of various crops as well as deterioration of soil health and environments. The most unfortunate impact of Green Revolution Technologies on Indian Agriculture is as follows:

1. Imbalance in production
2. Dependency on synthetic chemical fertilizers
3. Increase in secondary and micronutrient deficiencies
4. Increase in pesticide use
5. Unscientific water management and distribution
6. Reduction in productivity
7. Reduction in quality of the produce
8. Extinction of gene pool

9. Environmental pollution
10. Imbalance in social and economic status

All these problems of GRT lead to not only reduction in productivity but also deterioration of soil health as well as natural ecosystem. Moreover, to day the rural economy is now facing a challenge of over dependence on synthetic inputs and day-by-day increase in price of these inputs. Further, Indian Agriculture will face the market competition due to globalization of trade as per World Trade Organization (WTO). Thus, apart from quantity, quality will be the important factor. Such varieties of concern and problems of modern Indian Agriculture gave birth to various new concepts of farming such as organic farming, natural farming, biodynamic agriculture, do-nothing agriculture, eco-farming, *etc.*. The essential concept of these practices remains the same, *i.e.*, **back to nature,** where the philosophy is to feed the soil rather than the crops to maintain soil health and it is a means of giving back to the nature what has been taken from it (Funtilana, 1990). 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, like Organic Farming.

2

CONCEPT OF ORGANIC FARMING

The basic concepts behind Organic farming are:

- It concentrates on building up the biological fertility of the soil so that the crops take the nutrients they need from the steady turnover within the soil nutrients produced in this way and are released in harmony with the needs of the plants.
- Control of pests, diseases, and weeds is achieved largely by the development of an ecological balance within the system and by the use of bio-pesticides and various cultural techniques such as crop rotation, mixed cropping, and cultivation.
- Organic farmers recycle all wastes and manures within a farm but the export of the products from the farm results in a steady drain of nutrients.

In a situation, where conservation of energy and resources is considered to be important, community or country would make every effort to recycles to all urban and industrial wastes back to agriculture and thus the system would be rquiring only a small inputs of new resources to "top up" soil fertility.

3

DEFINITION OF ORGANIC FARMING

Many scientists at different levels have elaborated the concept of Organic Farming; the important descriptions are as follows:

- According to Hodgas (1981), Organic Farming is defined as a system that attempts to provide a balanced environment, in which the maintenance of soil fertility and control of pests and diseases are achieved by the enhancement of natural processes and cycles, with moderate inputs of the energy and resources while maintaining the productivity.
- Description offered by Lampkin (1990) has been found to be the most comprehensive one covering all essential features of Organic Farming. According to Lampkin,"Organic Farming is a production system which avoids or largely excludes the use of synthetically compounded fertilizers, growth regulators and live stock feed additives. To the maximum extent feasible Organic

Farming systems rely on crop rotations, crop residues, animal manures, legumes, green manures, off farm organic wastes and aspects of biological pest control to maintain soil productivity and tilth to supply plant nutrients and to control insect pests diseases and weeds. The Organic Farming implies :

- Recycling of waste and residue to the native soil itself
- Replenishing the nutrients depleted from the soil during the crop growth
- Encouraging the growth of microorganisms which regulates phased release of stored nutrients in the soil for the crop growth in right proportion
- Maintaining soil health by balancing the soil moisture and soil aeration
- Ensuring soil fertility by firmly binding the nutrient elements in the complex organic molecules

➢ Among the most stringent definitions is that of US Department of Agriculture, which has been defined as," A system that is designed to produce agricultural products by the use of methods and substances that maintain the integrity of organic agricultural products until they reach the consumer". This is accomplished by using, where possible, cultural, biological and mechanical methods, as opposed to use substances to fulfill any specific fluctuations within the system so as to maintain long term biological activity, ensure effective peak management, recycle waste to return nutrients to the land, provides attentive cares for farm animals and handle the agricultural products without the use of extraneous synthetic additives or processing in

accordance with the act and regulations in this part

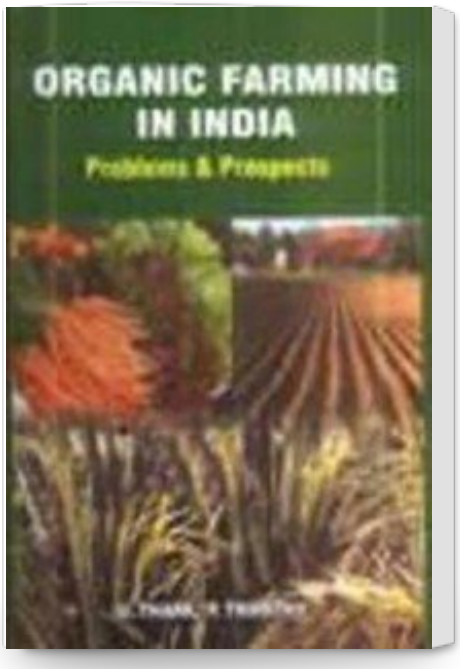
- The National organic Standards Board of the U.S. defines organic farming as an ecological production management system that promotes and enhances bio-diversity, biological cycles, and soil biological activity. The focus is on ecologically compatible production systems and processes, not on the product itself or specific inputs (Krissoff, 1998; GOI, 2001).
- According to Funtilana (1990), Organic Farming is giving back to the nature what is taken from it. It is not mere non-chemicalism in agriculture, it is a system of farming based on integral relationship. Therefore, one should know the relationship among soil, water, plant and microflora and overall relationship between plant and animal kingdom. It is the totality of these relationships, which is the backbone of the Organic Farming.
- Organic Farming is not merely saying no to chemicalism. It has many more things to say in one definition by Korean Organic Farming Environment Research Institute (KOFERI) in 1992 highlights " Organic Farming as the farming method by which we never use compound chemical fertilizers, agricultural chemicals, pesticides, growth hormones and uses natural sources such as organic matters, mineral and microbes".
- According to Gaur (2000), Organic Farming is also defined as a holistic management system, which promotes and improves the health of the agro system related to the biodiversity, nutrient bio-cycles and soil microbial and biochemical activities. Organic Farming

emphasizes management practices involving substantial use of organic manures and green manures.

- Organic Farming or Organic Production refers to organically grown crops which are not exposed to any chemicals right from the stage of seed treatments to the final post harvest handling and processing (Pathak and Ram, 2003). It is based on the recycling of natural organic matter and crop rotation, which sustain balance of living micro organisms (Bacteria and earthworms) in the soil. In other words, Organic Farming is a holistic production management system, which promotes and enhances agro-ecosystem health including biodiversity, biological cycles, and soil biological activities.
- Organic Farming using such cultural, biological and mechanical methods that maintain long term soil biological activities, recycles of organic wastes to return nutrients to the soil, provide alternate care for live stock and not using extraneous synthetic additives for growing crops or for post harvest processing (chemical preservatives) so that the integrity of organic products is maintained until they reach the consumers.
- Codex Alimentarius Commission, a joint body of FAO/ WHO defines "Organic Farming as holistic food production management systems, 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 fulfil any specific function within the system". In its simplistic form Organic farming may be defined as a kind of diversified agriculture wherein crops and livestock are managed through use of integrated technologies with preference to depend on resources available either at farm or locally. It emphasizes more on optimising the yield potential of crops and livestock under given set of farming conditions rather than maximization. To promote organic agriculture and to ensure fair practices in international trade of organic food, the Codex Alimentarius Commission, also framed certain guidelines for the production, processing, labelling and marketing of organically produced foods.

Organic Farming in India



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