

# The Complete Book on Organic Farming and Production of Organic Compost (2nd Revised Edition)

**Author:** NPCS Board of Consultants & Engineers

**Format:** Paperback

**ISBN:** 9788194099529

**Code:** NI213

**Pages:** 448

**Price:** Rs. 1,575.00 **US\$** 42.56

**Publisher:** Asia Pacific Business Press Inc.

Usually ships within **5** days

Organic farming, composed of organic fertilizers as an integral virtue, continues to remain a lucrative bet for the expanding agricultural industry, in line with growing organic food appeal to consumers as a healthy and ethical choice. Beyond ethics, organic fertilizers are gaining significant traction on account of numerous environmental benefits, such as enhanced soil structure and water conservation. Growing awareness among farmers about the nutritional benefits of plant based and animal based fertilizers and their role in promoting growth of earthworm and other microbiological activities vital for plant growth are fuelling adoption of organic fertilizers. Animal based organic fertilizers are garnering significant traction over plant based variants owing to their good aeration and water retention capabilities that enhance the soil fertility.

As consumers today are inclined towards clean labels and seeking transparency in everything they consume, organic has emerged as a promising approach to address these concerns. In light of these beneficial aspects of organic approaches and after gauging the futuristic opportunistic value of organic fertilizers.

Increasing health issues such as diabetes, obesity and digestive disorders are also one of the factors driving the growth of the organic food. The increased accessibility of organic food and beverages in retail outlets make it more convenient for consumers to purchase these products. Asia-Pacific is also expected to rapidly increase in CAGR, owing to the changing lifestyles and increase in consumer disposable income. Organic food products and shifting consumer preference towards organic food are among the major factors expected to boost demand for organic food products in India. Growing awareness among the consumers regarding the benefits of organic fertilizers over chemical fertilizers, and increasing awareness among farmers and cultivators towards eco-friendly fertilizers. The escalating demand for organic food products is likely to create a dire need for large scale development of organic fertilizers in the forthcoming years, which in turn will create a wide field of opportunities for stakeholders. Sensing the growing demand for organic fertilizers, market goliaths have shifted their focus on expanding their organic fertilizer produce to capitalize on the growing unmet demand from consumers.

The book cover various aspects related to different organic farming and production of organic compost with their agriculture process and also provides contact details of machinery suppliers with equipment photographs and plant layout.

A total guide to manufacturing and entrepreneurial success in one of today's organic farming and compost industry. This book is one-stop guide to one of the fastest growing sectors of the organic farming and compost industry, where opportunities abound for manufacturers, retailers, and entrepreneurs. This is the only complete handbook on the commercial production of organic farming and compost. It serves up a feast of how-to information, from concept to purchasing equipment.

# Contents

## Contents

1. INTRODUCTION TO ORGANIC FARMING
  - Indian Agriculture before the Green Revolution
  - The Green Revolution
  - Impact of Green Revolution on the Environment
  - Why Organic Farming?
2. SUSTAINABLE AGRICULTURE AND ORGANIC FARMING
  - The Background
  - Characteristics of Sustainable Agriculture
  - Definition of Sustainable Agriculture
  - Organic Farming
  - National Programme for Organic Production (Features)
3. CONCEPTS, DEFINITION AND COMPONENTS
  - Concept and Definition
  - Organic vs Natural Farming
  - Essential Characteristics of Organic Farming
  - Key Principles of Organic Agriculture Systems
  - Mixed Farming
  - Crop Rotation
  - Organic Cycle Optimization
  - Objectives Of Organic and Conventional Farming
  - Options in Organic Farming
  - Pure Organic Farming
  - Integrated Green Revolution Farming
  - Integrated Farming System
  - Management of Organic Farming
  - Advantages of Organic Farming
  - Barriers to Organic Farming
  - Components Of Organic Farming
  - Organic Manures
  - Non-Chemical Weed Control Measures
  - Biological Pest Management
4. ORGANIC MANURES, THEIR NATURE AND CHARACTERISTICS
  - Farmyard Manure
  - Compost
  - Sheep and Goat Manure
  - Poultry Manure
  - Oil-Cakes
  - Meal Group of Manures
  - Sewage, Sludge and Sullage
5. LIVESTOCK AND HUMAN WASTES
6. AVAILABLE ORGANIC MATERIALS AND PLANT NUTRIENTS
  - Livestock Wastes
  - Crop Residues and Aquatic Weeds
  - Rural and Urban Wastes
  - Agro-industrial Wastes
  - Fisheries and Marine Industry
7. ORGANIC FARMING IN RICE
  - Objectives of Organic Farming

Traditional Practices  
Aspects of Modern Agriculture  
Important Regulations for Organic Farming  
Nutrient Requirement  
Ecofriendly Management of Pests and Diseases in Rice  
Conservation of Native Natural Enemies to Enhance in  
Situ Biological Control in Rice  
Components of Eco-Friendly Disease Management  
Methods of Application  
Conclusion

## 8. PRODUCTION OF ORGANIC COMPOST

Composting  
Importance Of Composting  
Maximizing the Nutrients Availability from Agricultural Compost  
Effect on Soil and Crop  
Method of Spreading Compost  
Rate of Application  
Time of Application  
Classification of Composting  
Kinetics of Composting  
Moisture Content  
Ingredients to Avoid  
Microbes Involved in Composting  
Design Criteria  
Type and Amount of Compost  
The Climate  
Availability of Land  
Handling  
Practical Method of Making Compost  
Considerations in Building a Compost Heap  
Managing the Compost Heap  
Curing  
Practical Applications Composting  
Biogas Technology  
Composition of Slurry  
Slurry for Agriculture  
Transfer of Biogas Technology  
Growing of Mushrooms  
Conventional Types of Compost  
Compost Making and Spawning  
The Work Schedule  
Suggestions

## 9. EFFECT OF ORGANIC FERTILIZERS IN PONGAMIA PINNATA

Material and Methods  
Results and Discussion  
Summary

## 10. ORGANIC FERTILIZER: A SUPPLEMENTARY NUTRIENT SOURCE FOR SUGARCANE

Experiment and Results  
Azotobacter  
Azospirillum  
Phosphate Solubilizing Microorganisms  
Summary

## 11. EFFECT OF ORGANIC FERTILIZER ON SORGHUM

Material and Methods

Results And Discussion

Summary

## 12. SIGNIFICANCE OF AZOSPIRILLUM AND PSEUDOMONTAS ON GROWTH OF ELUCINE CROCANA

Material and Methods

Results and Discussion

Growth Attributes

Yield Attributes

Summary and Conclusion

## 13. BIOMASS PRODUCTION OF ACACIA NILOTICA

Material and Methods

Results and Discussion

Summary

## 14. CHEMICAL COMPOSITION OF BANANA

Material and Methods

Phosphate Solubilizing Microorganism

Mycorrhizal Inoculum

Plant Material

Treatment

Results and Discussion

Summary

## 15. N-FIXING AND PHOSPHATE SOLUBILIZING BACTERIA

Material and Methods

Results and Discussion

Summary

## 16. ASYMBIOTIC ORGANIC FERTILIZERS OF KHARIF SORGHUM

Material and Methods

Results and Discussion

Summary

## 17. EFFECT OF AZOSPIRILLUM AND PHOSPHATE SOLUBILIZING CULTURE ON QUALITY OF SUGARCANE

Material and Methods

Treatment Details

Results and Discussion

Summary and Conclusion

## 18. ORGANIC NUTRIENT

Soil Populations and Processes

Use of Biofertilizers

Enrichment of Compost with Microbial Inoculants

Nitrogen Fixing Microbs

Rhizobium

Leguminous Plants / Rhizobiaceae Symbiosis

Azotobacter Inoculant

Azospirillum Inoculant

Blue-Green Algae Inoculant

Multiplication of BGA

Frankiaceae Symbiosis

Large Scale Inoculum Production

Significance Of BNF

Mycorrhiza  
 Roots as Sinks and Sources of Nutrients and Carbon in  
 Agricultural Systems  
 Importance of Mycorrhiza  
 Benefits to Plants  
 Other Roles in Ecosystems  
 Values of People  
 Mycorrhizal Interactions with Plants and Soil Organisms in  
 Sustainable Agroecosystem  
 Symbiosis  
 Root System Form  
 Soil and Site Factors Influencing Mycorrhizas  
 Characteristics Of Fungal Isolates  
 Host Plants  
 How Mycorrhizas Work  
 Nitrogen Transfer in Mycorrhizal Plants  
 Nitrogen Nutrition in Mycorrhizal Plants  
 Phosphorus Fertility  
 Future Thrusts  
**19. INDUSTRIAL WASTES AS SOURCES OF  
 PLANT NUTRIENTS**  
 Significance of Waste Recycling  
 Chemical Characteristics of Wastes and Utilization  
 Effect on Crops Yield and Soil Properties  
 Effect on Crop Yields  
 Pathogens and Health Hazards  
 Heavy Metals and Associated Problems  
 Effect on Soil Properties  
 Problems in Waste Utilization  
 Future Research Needs  
**20. USE OF BIO-INOCULANTS FOR RECYCLING  
 OF BANANA WASTES**  
 Material and Methods  
 Results and Discussion  
**21. ROLE OF ORGANIC FERTILIZER IN UPLAND  
 CROP PRODUCTION**  
 Nitrogen-Fixing Bacterial Inoculants  
 Phosphate Solubilizing Microorganisms  
 Vesicular-Arbuscular Mycorrhizae (Vam)  
 Plant Growth Promoting Rhizobacteria  
 Future Research Needs  
 Strategy for Successful Use of Biofertilizers  
**22. VARIETIES FOR ORGANIC FARMING**  
 What is Organic Agriculture ?  
 Selection of Rice Varieties for Organic Farming  
 Weed Control  
 Soil Fertility  
 Insects and Diseases  
 Speciality Rices for Organic Farming  
 Varieties for Special Systems of Cultivation  
**23. BIOLOGICAL SUPPRESSION OF AQUATIC WEEDS**  
 Biocontrol of *Salvinia Molesta* Mitchell (Fam. Salviniaceae)  
*Cyrtobagous Salviniae* Calder and Sands (Fam. Curculionidae)

Biocontrol of *Eichhornia Crassipes* (Martius) Solms-Laubach (Fam. Pontederiaceae)

(x)

*Neochetina Eichhorniae* Warner (Fam. Curculionidae)

*Neochetina Bruchi* Hustache (Fam. Curculionidae)

*Orthogalumna Terebrantis* Wallwork (Fam. Galumnidae)

## 24. WEED MANAGEMENT IN ORGANIC RICE

Development of Weed Control Methods

Problems from Chemical Weed Control

Weed Control in Organic Farming

A. Preventive Methods

B. Cultural Methods of Weed Control

C. Mechanical Methods

D. Biological Control of Weeds

Bioherbicides

Some Basic Principles for Weed Management in Organic Farming

## 25. PROCESSING AND VALUE ADDITION OF ORGANIC RICE

Quick Cooking Rice

Preparation of Instant Fried Rice

Instant Rice Noodles

Preparation of Dried Starch from Rice Soup

## 26. BIOTECHNOLOGICAL APPROACH IN ORGANIC RICE FARMING

Why Biotechnology ?

Why Biotechnology ?

Important Benefits that have Emerged from the Transgenic Rice

Research:

Food and Agriculture Organization (Fao) of Un Recommendation

## 27. CROP ROTATION AND RESIDUE RECYCLING IN ORGANIC RICE PRODUCTION

Major Rice Cropping Systems

Major Rice Cropping Systems

Crop Rotation in Organic Production System

A Good Crop Rotation Programme Involves

Legumes in Crop Rotation

Green Manuring

Crop Residues in Organic Rice Production

## 28. BIOLOGICAL NITROGEN FIXATION

Non-Symbiotic Nitrogen Fixation

(xi)

Features Favourable for Non-Symbiotic Nitrogen Fixation

Nitrogenase

Basic Requirements for Nitrogen Fixation

Mechanism of Nitrogen Reduction

Symbiotic Nitrogen Fixation

Host Specificity

Root Nodulation

Mechanism of Nitrogen Fixation

Nitrogenase

Requirements for Nitrogen Reduction

Assimilation of Ammonia

Genetics of Nitrogen Fixation

Nif -genes of *Klebsiella Pneumoniae*

Nif-genes of *Azotobacter*

Nif-genes of *Anabaena*

## Genetics of Legume - Rhizobium Nitrogen Fixation

1. Rhizobial Genes

2. Legume Nodulin Genes

Overall Regulation of Genes

Gene Transfer for Nitrogen Fixation

1. Transfer of Nif-genes to Non-Nitrogen Fixing Bacteria

2. Transfer of Nif-genes to Yeasts

3. Transfer of Nif-genes to Plants

4. Transfer of Nod genes

5. Transfer of Hup genes

## 29. WEED MANAGEMENT IN ORGANIC FARMING

Cultural Methods Of Weed Control

Tillage

Tillage Combined With Irrigation

Timing

Seeding Rates and Cultivar Selection

Cropping Systems

Use of Animals

Flooding

Mulching

Fire

Composting

Hoeing and Hand Weeding

Farmer's Care

(xii)

Straw Disposal

Biological Control of Weeds Using Insects

Weed Suitability to Biological Control

Classical Approach

Characteristics of Weeds and Problems

Weed Survey for Natural Enemies

Introduction of Natural Enemies

Use of Pathogens in Weed Suppression

Mycoherbicides

Parasitic Weeds

Management Strategies for Parasitic Weeds

Ecological Principles

Research Needs

## 30. PEST MANAGEMENT IN ORGANIC FARMING

Pest Management Methods

Biological Alternatives

Organically Acceptable Chemical Alternatives

Cultural Alternatives

Biological Control

Botanical Pesticides

Biological Control in Field Crops

Botanics for Storage Pest Control

Seed Treatment with Materials of Plant Origin for Insect Control

Active Principles

Cultural Practices/Ecological Methods

Optimum Site Conditions

Diversity Over Time

Diversity in Space

Habitant Enhancement  
Role of Non-Crop Vegetation  
Trap Crops  
Constructed Traps  
Plant Resistance to Pests  
Traditional Practices for Pest Control  
Other Management Practices  
31. BIS SPECIFICATIONS  
32. MACHINERY AND EQUIPMENTS  
33. PLANT LAYOUT AND PROCESS FLOW SHEET

## About NIIR

**NIIR PROJECT CONSULTANCY SERVICES (NPCS)** is a reliable name in the industrial world for offering integrated technical consultancy services. NPCS is manned by engineers, planners, specialists, financial experts, economic analysts and design specialists with extensive experience in the related industries.

Our various services are: Detailed Project Report, Business Plan for Manufacturing Plant, Start-up Ideas, Business Ideas for Entrepreneurs, Start up Business Opportunities, entrepreneurship projects, Successful Business Plan, Industry Trends, Market Research, Manufacturing Process, Machinery, Raw Materials, project report, Cost and Revenue, Pre-feasibility study for Profitable Manufacturing Business, Project Identification, Project Feasibility and Market Study, Identification of Profitable Industrial Project Opportunities, Business Opportunities, Investment Opportunities for Most Profitable Business in India, Manufacturing Business Ideas, Preparation of Project Profile, Pre-Investment and Pre-Feasibility Study, Market Research Study, Preparation of Techno-Economic Feasibility Report, Identification and Section of Plant, Process, Equipment, General Guidance, Startup Help, Technical and Commercial Counseling for setting up new industrial project and Most Profitable Small Scale Business.

NPCS also publishes various process technology, technical, reference, self employment and startup books, directory, business and industry database, bankable detailed project report, market research report on various industries, small scale industry and profit making business. Besides being used by manufacturers, industrialists and entrepreneurs, our publications are also used by professionals including project engineers, information services bureau, consultants and project consultancy firms as one of the input in their research.

Our Detailed Project report aims at providing all the critical data required by any entrepreneur vying to venture into Project. While expanding a current business or while venturing into new business, entrepreneurs are often faced with the dilemma of zeroing in on a suitable product/line.

---

**NIIR PROJECT CONSULTANCY SERVICES** , 106-E, Kamla Nagar, New Delhi-110007, India. **Email:** [npcs.india@gmail.com](mailto:npcs.india@gmail.com) **Website:** [NIIR.org](http://NIIR.org)

Thu, 12 Sep 2024 02:42:26 +0530