

# Handbook on Organic Farming and Processing

**Author:** Dr. H. Panda

**Format:** Paperback

**ISBN:** 9788178331546

**Code:** NI255

**Pages:** 400

**Price:** Rs. 1,275.00 US\$ 125.00

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

Usually ships within **20** days

India is an agro based country. So organic farming plays an important role in agro field. The popularity of organic farming is gradually increasing and now organic agriculture is practiced in almost all countries of the world, and its share of agricultural land and farms is growing. As the organic food market continues to expand, so do the opportunities for small farmers.

Organic farming has emerged as the only answer to bring sustainability to agriculture and environment. This handbook is a comprehensive guide to growing, certifying, and marketing organic produce. Organic farming is not only a philosophy, but also a well-researched science that combines soil fertility, plant pathology and other biological and environmental sciences.

The major contents of this book are Sustainable Agriculture, National Programme on organic farming, Integration with organics and biofertilizers, Bulky organic manures and crop residues, Manuring on sight, Manuring potentials, Green Manuring, Production and promotion of organic fertilizers, Vermi composting, Response of crops to organic fertilizers, Phosphate solubilizing, *Bacillus thuringiensis*, Crop residue management, Integrated nutrient management towards sustainable agriculture, Integrated farming system, Mechanism of nitrogen fixation, Economics and marketing of organic farming.

As we have seen, the booming development taking place in organic farming and marketing offers many opportunities. We will be able to go on contributing to the establishment of organic production systems and this could lead to changes in life style and consumption patterns that will reach far beyond food and nutrition. This book will be very helpful to soil scientists, microbiologists, biologists, students, new entrepreneurs, fertilizer industries, training centers and to all those interested in efficient use and sustainable farming.

## Contents

### 1. SUSTAINABLE AGRICULTURE

Evolution of Sustainable Agriculture

Sustainable Livelihood

### 2. NATIONAL PROGRAMME ON ORGANIC FARMING

National Programme for Organic Production

Operational Structure of NPOP

Accreditation Agencies

Evaluating Agency

Accredited Inspection and Certification Agencies

Inspectors

Accreditation Regulation 2001  
Committee for Accreditation  
Application for Accreditation  
Updating and Renewal of Accreditation  
Power to Issue Guidelines  
Logo  
Suspension/Termination of Accreditation  
Categories for Accreditation  
Reciprocity  
The National Standards for Organic Products  
Guidelines for Organic Production and Processing  
Package of Practices

### 3. INTEGRATION WITH ORGANICS AND BIOFERTILIZERS

Fertilizers  
Nutrient Uptake and Removal by Crops  
Fertility Status of Soils  
Crop Responses to Fertilizer Application  
Optimum Application Rates  
Integration of Diverse Sources of Plant Nutrients  
Some Basic Issues  
Farmyard Manure  
Green Manures  
Rhizobium  
Blue Green Algae  
Azolla  
Conclusions

### 4. BULKY ORGANIC MANURES AND CROP RESIDUES

Organic Manures and Their Composition  
Potential and Available Supplies  
Technologies for Quicker and Better Compost Production  
Competing Uses of Resources  
Fate of Organic Materials in Soil  
Effect on Soil Properties  
Effect on Crop Yields  
Long-term Effects of Organic Manures  
Management Aspects  
Constraints in Adoption  
Future Research Needs

### 5. MANURING ON SIGHT

In-situ Manuring by Animal  
The System  
Advantages  
Limitations  
Verification of Farmers Experiences  
Sustainability  
Prospects  
In-situ Manuring with Plants (Green Manures)  
Benefits of Using Green Manures  
Enhance Soil Fertility  
Supplement for Nutrients

Improved Soil Structure  
Prevention of Soil Erosion  
Weed Control  
Method of Use  
Green Manuring in Situ  
Green Leaf Manuring  
Place in Farming System  
Green Manures in Rotation  
Green Manures and Undersowing  
Long Term Green Manures  
Green Manures as Mulch  
Green Manures in Agroforestry  
Management of Green Manuring  
Time of Sowing and Seed Rate  
Seed Treatment  
Stem Cuttings  
Mixed Cropping  
Inter Cropping  
Border Planting  
Phosphorus Response  
Digging in Green Manures  
The Choice of Green Manure  
Other Important Considerations  
Achieving Sustainability in the Use of Green Manures  
Sustainability  
Experiences Worldwide  
Conclusions

## 6. MANURING POTENTIALS

Available Potential of Organic Materials for Ex-Stu Manuring  
Organic Resources and Potential  
Livestock and Human Wastes  
Crop Residues, Tree Wastes and Aquatic Weeds  
Urban and Rural Wastes  
Agro-Industries Byproducts  
Marine Wastes  
Agricultural Waste  
Crop Residues  
Agro-industrial Wastes  
Rice Husk  
Bagasse  
Pressmud  
Tea Wastes  
Coir Waste  
Characteristics of Agricultural Wastes  
Nitrogen  
Phosphorus  
pH  
Bio Plant Growth Promoters  
Livestock Wastes  
Type of Production Unit  
Species and Age of Animal  
Other Factors

Beef Cattle  
Slotted Floors  
Dairy Cattle  
Utilization of Agricultural Organic Waste  
Recycling of Organic Materials for Fertilization  
Organic Mulch  
Concentrated Organic Manures  
Aquatic Weeds  
Aquatic Weeds as Source of Energy  
Aquatic Weeds as Organic Manures  
Oilcakes  
How to Use Oilcakes  
Cattle, Pig, and Poultry Manures  
Poultry  
Litter Grown  
Cage Grown  
Meat-meal  
Bloodmeal  
Fishmeal  
Horn-and-hoofmeal  
Collection and Storage of Organic Waste  
Economic Value of Organic Waste  
Availability of Organic Waste in India  
Processing of Agriculture Waste  
Conclusion  
Economic Considerations  
Public Policy

## 7. GREEN MANURING : NUTRIENT POTENTIALS AND MANAGEMENT

Green Manures  
Role of Green Manuring in Cropping Systems  
Fate of Green Manures on Application to Soils  
Availability of Essential Nutrients  
Crop Responses and Residual Effects  
Green Manure Management  
Residual and Long-term Effects  
Economics of Green Manuring  
Constraints of Green Manuring  
Future Research Needs  
Conclusions

## 8. PRODUCTION, DISTRIBUTION AND PROMOTION OF ORGANIC FERTILIZERS

Definition and Classification  
Practical Significance of Biofertilizers  
Requirement of Biofertilizers  
Production Technology of Biofertilizers  
Production of Biofertilizers  
Standards and Quality Control  
Government Support and Programmes  
Constraints  
Areas for Future Development  
Conclusions

## 9. VERMI COMPOSTING

Earthworms as Indicators of Soil Fertility

Earthworms and Plant Growth

Interaction of Vermicompost-Earthworm-Mulch-Plantroot (Vemp)

Vermicompost

Recycling of Wastes Through Verm-composting

Minimizing Pollution Hazard

Advantages of Vermi-Compost

Adverse Effects on Crops

Economic Viability

Vermiculture Process

Selection of Suitable Species

Epiges

Endoges

Aneciques

Basic Characteristics of Suitable Species

Fixing Earthworms for Identification

Transport of Fixed Worms to Laboratory

Description of Suitable Species

Family: Lumbricidae

*Eisenia foetida* (Sav.)

Family: Eudrilidae

*Eudrilus eugeniae* (Kinb.)

Family: Megascolecidae

*Lampito mauritii* (Kinb.)

*Metaphire anomala* Mich. (= *Pheretima anomala*)

*Metaphire posthuma* (= *Pheretima posthuma*)

*Perionyx excavatus* E. Perr.

*Perionyx Sansbaricus* Michaelson

Maintenance of Base Culture

Vermicomposting Materials

Animal Dung

Agricultural Waste

Forestry Wastes

City Leaf Litter

Waste Paper and Cotton Cloth etc.

City Refuge

Biogas Slurry

Industrial Wastes

Preliminary Treatment of Composting Material

Pre-Treatment of Leaf Litter and Agricultural Waste

Small Scale or Indoor Vermicomposting

Large Scale or Outdoor Vermicomposting

Requirements for Vermicomposting

Container

Bedding Material

Moisture Content

Temperature

Initiation of Vermiculture in India

## 10. RESPONSE OF CROPS TO ORGANIC FERTILIZERS IN SALT AFFECTED SOILS

Response of Crops in Salt-Affected Soils of Punjab and Haryana

## 11. PHOSPHATE SOLUBILIZING SOIL ACTINOMYCETES AS BIOFERTILIZERS

Material and Methods

Results and Discussion

Summary

## 12. VERMICOMPOSTING OF KITCHEN WASTE

Material and Methods

Results and Discussion

Conclusion

## 13. BACILLUS THURINGIENSIS : AN EFFECTIVE BIOINSECTICIDE

Criteria for Microbial Insecticide

Material and Methods

Results

Discussion

Summary

## 14. COMPOSTING OF AGRICULTURAL AND INDUSTRIAL WASTES

Definition

Principles of Composting

Agricultural Wastes

Methods for Composting of Agricultural Wastes

Indore Method

Activated Compost

Banglore Method

NADEP Compost

Coimbatore Method

Synthetic Compost

Windrow Composting (Leaf Compost)

Accelerated Composting and Enrichment

Vermi-composting

Animal Waste Composting

Oil Palm Waste Composting

Phospho-Compost

Reinforced Compost from Sugarcane Trash and Pressmud

Enriched FYM (EFYM)

Weed Composting

Composting of Parthenium

Hints for Composting Agricultural Wastes

Industrial Wastes

Composting of Coir Pith

Composting of Pressmud

Using Distillery Effluent

Using Microbial Inoculum

Using Pressmud and Distillery Effluent

Conclusion

Future Needs

## 15. CROP RESIDUE MANAGEMENT

Residue Management

Crop Residue Potential

Crop Residue Components  
Crop Residue Uses  
Effect on Soil Management  
Residues with Fertilizer  
Effect of Residues on N Fertilization  
Future Research Needs

## 16. INTEGRATED NUTRIENT MANAGEMENT TOWARDS SUSTAINABLE AGRICULTURE

Need for INM  
Concepts and Approaches  
Components of Integrated Nutrient Management Strategies  
Reduction of Losses from Applied Inorganic Fertilizers  
Application to synchronize with the demands of Crops  
Timing, Placement and Choice of Fertilizers  
Controlled Release of Nutrients  
Crop Choice  
Retention of Native Soil Nutrients  
Alternate or Supplementary Sources of Nutrients  
Biofertilizers in INM  
Blue Green Algae  
Azolla  
Azospirillum spp. (*A. Lipoferum* and *A. brasilense*)  
Rhizobium  
Phospobacteria  
VAM  
Organic Manures  
Municipal and Sewage Wastes  
Composting of Organic Wastes  
Crop Residue Management  
Green Manuring  
Non-conventional Green Manures  
Oil Cakes  
Legumes in INM  
Legumes Grown in System  
Legumes as Intercrops  
INM Cropping System  
Rice-based Cropping System  
Cotton-based Cropping System  
Wheat-based Cropping Systems  
Sugarcane-based Cropping System  
INM and Long Term Studies  
Future Strategies

## 17. MECHANISM OF NITROGEN FIXATION

## 18. INTEGRATED FARMING SYSTEM

Definitions  
Advantages of IFS  
1. Productivity  
2. Profitability  
3. Potentiality/Sustainability  
4. Balanced Food  
5. Environmental Safety

6. Recycling
  7. Income Round the Year
  8. Adoption of New Technology
  9. Saving Energy
  10. Meeting Fodder Crisis
  11. Solving Fuel and Timber Crisis
  12. Employment Generation
  13. Agro-industries
  14. Increasing Input Efficiency
  15. Increasing the Standard of Living of the Farmer
- Integration of Subsystem in Farming System

#### Aquaculture

- Paddy-cum-fish Culture
- Duck-cum-Fish Culture
- Fish-cum-Poultry Farming
- Fish-cum-Pig Farming
- Sericulture and Fish Farming

#### Biogas Plants

#### Mushroom Cultivation

#### Mushroom Cultivation

#### Spawn Running Room

#### Cropping Room

#### Approximate Size of the Rack of Cropping Room

#### Materials Required

#### Preparation of Cylindrical Beds

#### Making Ready the Substrate

#### Making Ready the Polythene Bags

#### Making Ready the Spawn

#### Spawning the Bed

#### Spawn Running and Opening of Beds

#### Cropping

#### Harvesting Mushroom

#### Packing and Storage

#### Animal Husbandry

#### Dairy Farming

#### Sheep and Goat

#### Piggery

#### Rabbit

#### Poultry Farming

#### Japanese Quail

#### Ducks

#### Pigeons

#### Disease

#### Agroforestry

#### (i) Agri-silviculture System

#### (ii) Silvipasture System

#### (iii) Silvi-horti-pastural System

#### I. Coastal Alluvium

#### II. Riverine Alluvium

#### III. Red Gravelly Soil

#### IV. Lateritic Soil

#### V. Black Soil (clay loam soil)

#### VI. Sandy Red Loam



- VII. Calcareous Soil
- VIII. Problem Soils
  - (a) Saline and Alkaline Soils
  - (b) Mined Areas
  - (c) Theri Soils
- Sericulture
- Manuring
- Season
- Planting
- Quantity of Cuttings
- Varieties
- Pruning
- Leaf Harvest
- Leaf Yield
- Silkworm Rearing
- Life Cycle
- IFS under lowland Condition
- IFS Under Garden Land Conditions
- IFS Under Rainfed Conditions
- Coconut based Integrated Farming System
- Crop Components
- Future Needs

## 19. RECOMMENDATIONS

## 20. ECONOMICS AND MARKETING OF ORGANIC FARMING

- Economic Viability
- The Challenge of Going Organic
- Farm Production and Profit
- Microeconomic Aspects
- Output Mix
- Output Value
- Input Mix
- Input Value
- Labor Costs
- Benefits for Farmers
- Employment Generation
- Total Concept Approach
- Rural and Community Development
- Quality of Organic Product
- Product Prices
- The Organic Market
- Growth
- Constraints and Opportunities
- Unfair Trends in the Market
- Fair Trade
- Fair Trade and Trade Development
- Small Farmers Disadvantaged
- Dilemma
- Fair Trade Labeling
- Promoters of Fair Trade
- Action for Fair Trade
- Progress in Fair Trade Marketing

Protectionism  
Priority to Local Economics  
Strengthening Local Economics  
Critical Factors  
Challenges  
Trade Opportunities  
New Opportunities in a Growing Market  
Alternative Markets  
Role of the Trader  
Quality Guarantee  
The Consumer  
Retailing Arrangements  
Dilemma of the Farmer  
Processing  
Marketing of Perishables organic Produce-study in Bangalore, India  
Fruits and Coconuts  
Milk  
Potatoes  
Exclusive Outlets for Organic Products  
Lessons Learnt  
Certification of Organic Produce  
The Standards  
Trading  
Serious Barriers  
Meaning of Certified Organic  
Partnerships are Needed  
Organic Farmers and Export Markets: The Role of Co-operative - Case Study form India  
IFOAM and Certification  
IFOAM and Accreditation  
Organic Foods Certification in India  
Introduction of Certification in India for Organic Agri Exports  
Suggestion  
India Needs  
Conclusion

## 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 varies 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.

---

**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)

Tue, 11 Dec 2018 01:19:06 +0530