

Manufacture of Biofertilizer and Organic Farming (2nd Edition)

Author:- H. Panda

Format: hardcover

Code: NI239

Pages: 328

Price: Rs.1195US\$ 125

Publisher: NIIR PROJECT CONSULTANCY SERVICES

Usually ships within 5 days

The book "**Manufacture of Biofertilizer and Organic Farming**" offers an extensive overview of the biofertilizer industry, touching on all aspects from production techniques to the application within organic farming practices. The table of contents reveals a comprehensive structure, guiding the reader through a thorough exploration of biofertilizer types, production methods, manufacturing processes, and applications in organic farming. This book appears to serve as an invaluable resource for those interested in sustainable agriculture, providing insights into the benefits and challenges associated with biofertilizers and organic farming methods.

Starting with an introduction to biofertilizers, the book classifies them based on their types and sources of nitrogen fixation, further detailing the components and characteristics of common biofertilizers. It also outlines the application methods, limitations, and production processes for bio powder and granulate fertilizers. This foundation sets the stage for a deeper dive into the biofertilizer manufacturing business, providing a step-by-step guide on starting and running such a venture, including business planning, technology sourcing, manufacturing processes, and marketing strategies.

The classification section further delves into biofertilizers based on the microorganisms used and their functions, offering a detailed look at the types of biofertilizer and their uses in agriculture. The production sections discuss various methods, including the use of fermenters, tea waste, and even bird excreta, showcasing the diversity in raw materials that can be utilized in biofertilizer production. It also covers the manufacturing of phosphate-rich organic manure (PROM), highlighting its importance and benefits.

The later chapters focus on organic farming, outlining its advantages, types, and nutrient management techniques. It emphasizes weed, pest, and disease management within organic farming systems, presenting methods and practices to enhance sustainability. Additionally, it discusses the regulatory framework, certification processes, and government schemes promoting organic farming, particularly in the Indian context. The book concludes with an exploration of future challenges and opportunities in the biofertilizer industry and organic farming, suggesting areas for further research and development.

"Manufacture of Biofertilizer and Organic Farming" is designed to be a detailed resource for entrepreneurs, startups, farmers, researchers, and students interested in sustainable agriculture. It provides a comprehensive understanding of the biofertilizer production process and its critical role in supporting organic farming practices. Through its detailed explanations

and practical guidelines, this book aims to promote the adoption of sustainable agricultural practices that benefit the environment, enhance soil health, and contribute to food security.

1. Introduction 1.1 Types of Biofertilizers 1.1.1 Symbiotic Nitrogen-Fixing Bacteria 1.1.2 Loose Association of Nitrogen-Fixing Bacteria 1.1.3 Symbiotic Nitrogen-Fixing Cyanobacteria 1.1.4 Free-Living Nitrogen-Fixing Bacteria 1.2 Components of Biofertilizers 1.3 Characteristics Features of Common Biofertilizers 1.4 Applications of Biofertilizers 1.5 Limitations of Biofertilizers 1.6 Production of Bio Powder Fertilizer 1.6.1 Material Dewatering 1.6.2 Conversion to Bio Organic Compost 1.6.3 Crushing Process 1.6.4 Mixing Process 1.7 The Production of Bio Granulate Fertilizer 1.8 Factors Affecting Efficiency of Biofertilizers 2. How to Start a Biofertilizer Manufacturing Business 2.1 Here are the Steps to Start Biofertilizer Manufacturing Business 2.1.1 Craft a Business Plan 2.1.2 Source the Technology 2.1.3 Learn Biofertilizer Manufacturing Process 2.1.4 Registration & Licensing 2.1.5 Secure a Space 2.1.6 Establish the Factory & Laboratory 2.1.7 Arrange Utilities 2.1.8 Plant & Machinery 2.1.9 Raw Materials 2.1.10 Promote Product 2.2 Who Can Start Biofertilizer Manufacturing Business? 3. Classification of Biofertilizers 3.1 Classification Based on Microorganism Used in Biofertilizer 3.2 Classification Based on Function of Biofertilizer 3.3 Types of Biofertilizer 3.4 Grouping of Biofertilizers 3.5 Microorganisms in Biofertilizers and Their Uses 3.5.1 Nitrogen Fixing Biofertilizers Bacteria 3.5.2 Phosphate Solubilising Biofertilizers 3.5.3 Phosphate Absorbers Biofertilizers 3.5.4 Biofertilizers for Micro Nutrients 3.5.5 Plant Growth Promoting Rhizobacteria (PGPR) 3.6 Production of Biofertilizers on Industrial Level 3.7 Application of Biofertilizers 3.8 Tips to Use Biofertilizers 4. Production and Distribution of Biofertilizers 4.1 Definition and Classification 4.2 Practical Significance of Biofertilizers 4.3 Requirement of Biofertilizers 4.4 Production Technology of Biofertilizers 4.5 Production of Biofertilizers 4.6 Standards and Quality Control 4.7 Government Support and Programmes 4.8 Constraints 4.9 Areas for Future Development 4.10 Conclusions 5. Manufacture of Biofertilizer 5.1 The Compost Factory 5.2 Collection and Storage of the Raw Material 5.2.1 Plant Residues 5.2.2 Urine Earth and Wood Ashes 5.2.3 Water and Air 5.3 Arrangement and Disposal of the Bedding Under the Work Cattle 5.4 Charging the Compost Pits 5.5 Turning the Compost 5.6 Time-Table of Operations 5.7 Output 5.8 Manurial Value of Indore Compost 6. Biofertilizer Production Using Fermenter 6.1 Benefits of Fermenters in the Production of Biofertilizer 6.2 Production Process 6.2.1 Inoculum Preparation 6.2.2 Fermenter Setup 6.2.3 Medium Preparation 6.2.4 Inoculation 6.2.5 Fermentation Process 6.2.6 Biomass Growth 6.2.7 Harvesting 6.2.8 Formulation and Packaging 6.2.9 Quality Control 6.2.10 Application 6.3 Global Expansion and Localization 6.4 Supply Chain, Branding, and Marketing 6.5 Regulatory Changes and Industry Compliance 6.6 Technological Innovation and Competitor Analysis 6.7 Feasibility and Techno-Economic Viability Study 6.8 Future Opportunities 7. Biofertilizer Manufacturing from Tea Waste 7.1 Benefits 7.2 Agricultural Applications 7.3 Manufacturing Process 7.3.1 Collection and Preparation of Tea Waste 7.3.2 Composting 7.3.3 Enrichment with Beneficial Microorganisms 7.3.4 Aging and Quality Control 7.3.5 Packaging and Storage 7.3.6 Application 7.3.7 Monitoring and Feedback 7.4 Machinery are Required in Manufacturing of Biofertilizer from Tea Waste 7.5 Feasibility Study 7.6 Techno-Economic Viability Study 7.7 Global Expansion and Localization 7.8 Challenges and Solutions in Biofertilizer Production 7.9 Advancements and Future Directions 8. Biofertilizer Granules Manufacturing 8.1 What are Biofertilizer Granules? 8.2 Benefits of Biofertilizer Granules 8.3 Difference between Fertilizer Granules and Biofertilizer Granules 8.3.1 Composition 8.3.2 Mode of Action 8.3.3 Environmental Impact 8.4 Manufacturing Process of Biofertilizer Granules 8.4.1 Selection of Microbial Strains 8.4.2 Preparation of Carrier Materials 8.4.3 Inoculum Production 8.4.4 Granulation 8.4.5 Drying 8.4.6 Quality Control 8.5 Application and Usage 8.6 Environmental Impact 8.7 Challenges and Considerations 8.8 Future Directions 8.9 Regulatory Considerations 8.10 Adoption and Scaling-Up 8.11 Case Studies and Success Stories 8.12 Future Challenges and Opportunities 8.13 Recommendations for Further Research 8.14 Machinery and Equipments Used in Biofertilizer Granules 8.14.1 Pre-Treatment Section 8.14.2 Granulation Section 8.14.3 Post-Treatment

Section 9. Biofertilizer Manufacturing from Birds Excreta 9.1 Unveiling the Treasure Trove: Composition of Bird Excreta 9.2 Benefits of Biofertilizer from Birds Excreta 9.3 Specific Bird Excreta and their Applications 9.4 Advantages of Biofertilizer from Bird Excreta 9.5 Manufacturing Process of Biofertilizer from Bird Excreta 9.6 Machinery Used In Manufacturing of Biofertilizer from Birds Excreta 9.6.1 Pre-Processing Equipment 9.6.2 Composting and Fermentation Equipment 9.6.3 Nutrient Enrichment and Formulation Equipment 9.6.4 Additional Equipment 9.6.5 Important Notes 9.7 Addressing Challenges and Ensuring Quality 9.8 Innovation and Technology for Sustainable Growth 9.9 Policy and Regulatory Framework 9.10 Education and Awareness 9.11 Policy Support 9.12 Market Development 10. Phosphate Rich Organic Manure (PROM) Manufacturing 10.1 Understanding the Need 10.2 Enter PROM 10.3 Applications and Benefits 10.3.1 Agricultural Applications 10.3.2 Benefits 10.4 Manufacturing Process 10.4.1 Ingredients 10.5 The Composting Process 10.5.1 Pre-Composting 10.5.2 Main Composting 10.5.3 Maturation 10.5.4 Curing and Processing 10.6 Additional Considerations 10.6.1 Nutrient Balancing 10.6.2 Quality Control 10.6.3 Environmental Impact 10.7 Further Resources 10.8 Machinery Required Manufacturing of PROM 10.9 Synthesis of Phosphate-Rich Biofertilizer with Anaerobic Digester Sludge and Vermicompost 10.9.1 Manufacturing of PROM (Substances and Procedures) 10.9.2 Agitated Stirred Tank Bioreactor (Slurry Reactor) 10.10 Production of PROMs Combined with Biogas Generation 11. Production of Various Biofertilizers 11.1 Production of Bacterial Biofertilizer 11.1.1 Historical Background 11.1.2 Production of Biofertilizer 11.1.3 Strain Selection Criteria 11.1.4 Steps for Biofertilizer Preparation 11.1.5 Green Manuring 11.2 Algal and Other Biofertilizers 11.2.1 Mass Production of Cyanobacterial Biofertilizers 11.2.2 Large-scale Cultivation of Azolla 11.3 Endophytic Nitrogen Fixers 11.3.1 Facultative Endophytic Diazotrophs 11.3.2 Obligate Endophytic Diazotrophs 11.3.3 Other Bacteria 11.4 Biofertilizers aiding Phosphorus Nutrition 11.5 Production of Mycorrhizal Biofertilizer 11.5.1 Ectomycorrhizal Fungi 11.5.2 VA Mycorrhizal Fungi 12. Liquid Biofertilizer Manufacturing 12.1 Method of Application of Liquid Biofertilizer 12.2 Function of Liquid Biofertilizer 12.3 Advantages of Liquid Biofertilizer 12.4 Constraints of Liquid Biofertilizer 12.5 Liquid Biofertilizer Manufacturing Process 12.6 Machinery Used in Liquid Biofertilizer Manufacturing 12.6.1 Raw Material Processing 12.6.2 Fermentation 12.6.3 Separation and Purification 12.6.4 Formulation and Packaging 12.7 Additional Equipment 13. How to Produce Organic Fertilizers from Food Waste 13.1 How is Organic Fertilizer Produced from Food Waste? 13.2 Technology and Apparatus for Processing Food Waste into Organic Fertilizer 13.2.1 Dehydration 13.2.2 Compost 13.2.3 Granulation 13.2.4 Drying and Cooling 13.2.5 Sieving and Package 13.3 Gain Advantages from Utilizing Organic Fertilizer Derived from Food Waste 14. Organic Fertilizer Manufacturing from Cow Dung 14.1 Benefits of Organic Fertilizer from Cow Dung 14.2 Manufacturing Organic Fertilizer from Cow Dung 14.2.1 Fermentation and Composting 14.2.2 Crushing and Mixing of Raw Materials 14.2.3 Pelletizing Process 14.2.4 Drying and Cooling Process 14.2.5 Packaging Process 14.3 Machinery and Equipments Required for Making Organic Fertilizer from Cow Dung 14.4 Packaging of Organic Fertilizer 14.5 Quality Control 15. Plant Layout Description of Biofertilizer Manufacturing 16. Organic Farming 16.1 Advantages of Organic Farming 16.2 Types of Organic Farming 16.2.1 Pure Organic Farming 16.2.2 Integrated Organic Farming 16.3 Nutrient Management in Organic Farming 16.3.1 Organic Manures 16.3.2 Bacterial and Fungal Biofertilizers 16.4 Weed Management in Organic Farming 16.5 Insect Pest Management 16.6 Diseases Management in Organic Farming 16.7 Limitations and Implications of Organic Farming 16.8 Organic Farming Regulation: Standards and Labels 16.9 Methods or Techniques of Organic Farming 16.9.1 Crop Rotation 16.9.2 Green Manure 16.9.3 Compost 16.9.4 Crop Diversity 16.9.5 Soil Management 16.9.6 Controlling Pests Biologically 16.9.7 Weed Management 16.9.8 Livestock 16.9.9 Genetic Modification 16.10 The Advantages and Drawbacks of Organic Agriculture for End Users 17. How to Start Organic Farming in India 17.1 What Is Organic Farming in India? 17.2 Promoting Organic Farming in India 17.3 Key Characteristics of Organic Farming 17.4 Advantages of Organic Farming 17.5 Guidelines for Soil Preparation in Organic Farming 17.6 Steps for How to Start Organic Farming in India 17.6.1 Step 1: Get Organic Certification 17.6.2 Step 2: Selecting

a Site for Organic Farming 17.6.3 Step 3: Prepare the Soil and Make Good Compost 17.6.4 Step 4: Select a Suitable Crop 17.6.5 Step 5: Start Looking for Markets 17.6.6 Step 6: Take Care of What You Plant 17.6.7 Step 7: Water Management for Organic Farming 17.7 Organic Farming Practices in India 17.8 Integrated Weed Management 17.9 Organic Farming Startup Costs in India 17.10 Nutrient Management in Organic Farming 17.11 Different Types of Organic Manures 17.12 Pests and Diseases Management in Organic Farming 17.13 Government Schemes for Promoting Organic Farming 17.14 Different Schemes for Promoting Organic Farming 17.15 Profitability of Organic Farming in India 17.16 Investment Required for Organic Farming Business 17.17 Constraints Being Faced in Organic Farming 18. Methods of Organic Farming 18.1 Introduction to Methods of Organic Farming 18.2 Various Approaches to Organic Farming 18.3 Variety of Crops 18.4 Crop Rotation 18.5 Crop Rotation is Beneficial for Four Reasons 18.6 Control of Biological Pests 18.7 Soil Management 18.8 Green Manure 18.9 Compost 18.10 Control of Weeds 18.11 Managing Different Organisms 18.12 Livestock 18.13 Modification of Genetics 19. How to Get Organic Certification in India 19.1 In India, Who is Eligible to Apply for Organic Certification? 19.2 Steps for Obtaining Organic Certification in India 19.2.1 Step 1: Understanding the Organic Certification Requirements 19.2.2 Step 2: Selection of Certifying Agency 19.2.3 Step 3: Application and Documentation/Organic Certification Cost 19.2.4 Step 4: Inspection and Evaluation 19.2.5 Step 5: Compliance and Correction 19.2.6 Step 6: Certification Decision 19.2.7 Step 7: Annual Review and Renewal 19.3 Time for Obtaining Organic Certification in India 20. Organic Matter and Soil Fertility 20.1 Soil Humus, Its Origin and Nature 20.2 The Formation of Humus as a Result of the Synthesizing Activities of Micro-Organisms 20.3 The Role of Humus in the Soil 20.4 The Washington Symposium on Soil Organic Matter 21. Weed Management in Organic Farming 21.1 Cultural Methods of Weed Control 21.1.1 Tillage 21.1.2 Tillage Combined with Irrigation 21.1.3 Timing 21.1.4 Seeding Rates and Cultivar Selection 21.1.5 Cropping Systems 21.1.6 Use of Animals 21.1.7 Flooding 21.1.8 Mulching 21.1.9 Fire 21.1.10 Composting 21.1.11 Hoeing and Hand Weeding 21.1.12 Farmer's Care 21.1.13 Straw Disposal 21.2 Biological Control of Weeds Using Insects 21.2.1 Weed Suitability to Biological Control 21.2.2 Classical Approach 21.2.3 Characteristics of Weeds and Problems 21.2.4 Weed Survey for Natural Enemies 21.2.5 Introduction of Natural Enemies 21.3 Use of Pathogens in Weed Suppression 21.3.1 Mycoherbicides 21.3.2 Characteristics of Good Mycoherbicide 21.3.3 Use of Seed-Borne and Seed Infecting Microorganisms 21.4 Parasitic Weeds 21.4.1 Management Strategies for Parasitic Weeds 21.4.2 Biological Control 21.5 Ecological Principles 21.6 Research Needs 22. Pest Management in Organic Farming 22.1 Pest Management Methods 22.1.1 Biological Alternatives 22.1.2 Organically Acceptable Chemical Alternatives 22.1.3 Cultural Alternatives 22.2 Biological Control 22.2.1 Botanical Pesticides 22.2.2 Bacterial Insecticides 22.2.3 Biological Control in Field Crops 22.2.4 Other Crops 22.3 Botanicals for Storage Pest Control 22.3.1 Seed Treatment with Materials of Plant Origin for Insect Control 22.3.2 Active Principles 22.4 Cultural Practices/Ecological Methods 22.4.1 Optimum Site Conditions 22.4.2 Diversity Over Time 22.4.3 Diversity in Space 22.4.4 Habitat Enhancement 22.4.5 Role of Non-Crop Vegetation 22.4.6 Trap Crops 22.4.7 Constructed Traps 22.4.8 Plant Resistance to Pests 22.5 Traditional Practices for Pest Control 22.6 Other Management Practices 23. BIS Standards 24. Factory Layout and Process Flow Chart & Diagram 25. Photographs of Plant and Machinery with Suppliers Contact Details • Electric Steam Generator • Fertilizer Crusher Machine • Bio Fertilizer Packaging Machine • Compost Turner for Bio Organic Fertilizer Composting • Liquids Biofertilizer Manufacturing Plant • Ribbon Mixer • Hammer Mill • Liquid Fertilizer Filling Machine • Bio Fertilizer Fermenter • Double Cone Blender Mixer • Rotary Drum Dryer • Fertilizer Mixer • Organic Fertilizer Pellet Machine • Bio Fertilizer Packing Machine • Fertilizer Vibrating Screen • Organic Waste Composting Machine (Bioreactor) • Fertilizer Crusher • Biofertilizer Packing Filling Machine • Incubator Rotary Shaker • Fertilizer Dryer Machine • Ribbon Mixer

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 **Website:** NIIR.org

Fri, 02 May 2025 08:47:59 +0000