## The Complete Technology Book on Vermiculture and Vermicompost (Earthworm) with Manufacturing Process, Machinery Equipment Details & Plant Layout 2nd Edition

Author: Dr. Himadri Panda Format: Paperback ISBN: 9788195370146 Code: NI116 Pages: 368 Price: Rs. 1,275.00 US\$ 33.95 Publisher: Asia Pacific Business Press Inc. Usually ships within 5 days

Advantage of vermicomposting is that it composts the wastes of rural areas. They clean our villages by using unnecessary organic and non-organic materials. Improves the texture of the soil and its ability to store water. Improves root growth and the multiplication of beneficial soil microorganisms by providing optimum aeration to the soil.

Vermicompost (vermi-compost) is a mixture of decomposing vegetable or food waste, bedding materials, and vermicast created by the decomposition process using various species of worms, usually red wigglers, white worms, and other earthworms. This is known as vermicomposting, and the practise of raising worms for this purpose is known as vermiculture. Sewage treatment can also be done with vermicomposting. The Global Vermicompost Market is reach growing at a CAGR of 16.74%. The Growth of the global vermicompost market is caused by various factors, such as improved soil aeration, improved water holding capacity, better nutrient cycle, and enriched soil with micro-organism, helps in plant root growth and structure, enhanced germination. The vermicomposting method is used in organic farming. Increasing the use of sustainable agricultural practices, such as vermicompost market growth. Vermicompost offers plants with necessary nutrients and helps in plant diseases suppression. Worm castings often comprise 7 times more phosphorus, 11 times more potassium, and 5 times more nitrogen than ordinary soil, which are crucial minerals required for plant growth.

Vermiculture and Vermicompost (Earthworm), as well as their manufacturing methods, are all covered in depth in this book. It also offers photos of equipment as well as contact information for industrial providers. This book is a one-stop shop for everything you need to know about the Vermiculture and Vermicompost (Earthworm) industry, which is ripe for manufacturers, merchants, and entrepreneurs. This is the only book that goes into great detail about Vermiculture and Vermicompost. It's a genuine feast of how-to material, from concept to equipment buying.

## Contents

1. INTRODUCTION Advantages of Vermicomposting Vermicomposting in Daily Life Vermiculture v/s Vermicomposting Vermitechnology (VT) Progress of Worm Industry Turning Garbage into Money Chemical Composition of the Vermicompost Vermicomposting at Home Vermicomposting on the Farm The Business of Worms Interaction of Vermicompost-Earthworm-Mulch-Plantroot (Vemp) Earthworm Farming is not Hard

2. EARTHWORMS : ECOLOGICAL TYPES Trophic Classification of Earthworms Drilosphere Physical Effects of Earthworms on Soils Chemical Effects of Earthworms on Soils The Effect of absence of Earthworms in Soils

3. PHYLUM ANNELIDA : EARTHWORM Earthworms Economic Importance Pheretima Poshuma The Body Wall Locomotion The Coelom The Digestive System Food and Digestion Respiration Excretory Organs Physiology of Excretion **Chloragogen Cells** Vascular System The Nervous System Working of the Nervous System Receptor Organs Generative Organs Copulation Fertilization and Coccon Formation Classification

4. EARTHWORMS : LIFE CYCLE Life Cycle Studies Life Cycle Patterns Life cycle—Lampito mauritii Cocoons Juveniles Non-Clitellates Clitellates Life Cycle—Perionyx excavatus Cocoons Juveniles Non-clitellates Clitellates Doubling Time Biochemical Changes During Growth

5. EARTHWORMS: FOR CULTURE Worms for Vermiculture Earthworm Breeding Vermicompost Collecting local Earthworms

6. WHY VERMICOMPOSTING Fertilizers use and Deterioration of Soil Environment Testing the Impact of Vermicomposting Nitrogen and Humification in Vermicomposting Vermicompost - a Quality Manure Recycling of Wastes through Vermi-Composting Minimizing Pollution Hazard **Providing Growth Promoters** Vermicomposting : Advantages Black Gold (Worm Castings) from Worms Adverse Effects on Crops **Economic Vibility** 7. VERMICOMPOST HIGH-GRADE FERTILIZER Crucial to Organic Agriculture Wide-spread use in the Tropics and Sub-Tropics Flexible Method Rapid Conversion What Exactly is Vermicompost? Characteristics **Conversion Processes** Plant Nutritionists - Ncouragement of Soil Fertility Soil Conditioning and Plant Strengthening Effect Minimisation of Solid Waste with Low Toxicity and Containing Heavy Metals Which Species of Earthworms? Eisenia Fetida - Hard Workers Transformation of the Organic Material: Reproduction Under Perfect Conditions Further Uses Feed Source Material for the Fodder Nutritional Balance in Feed Feeding Process Various Worm Composting Methods Size of the Worm Compost Heap Climate Construction of a Worm Farm Harvesting the Vermicompost Storage of Vermicompost Spreading the Vermicompost The Liquid Variety: Vermiwash A Method to Prepare Vermiwash Application of Vermiwash

Management Great Potential for Large and Small Organic Farms alike

8. VERMICULTURE AND VERMITECH How to Start Vermiculture Preparation of Vermibeds Setting Up of a Vermiwash Unit An Enterprise Economics of Vermitech (In Indian Rupees) Construction and Maintenance of a Twin Unit System Marketing 9. VERMICOMPOSTING MATERIALS Animal Dung Agricultural Waste Forestry Wastes City leaf Litter Waste Paper and Cotton Cloth etc. City Refuge Biogas Slurry Industrial Wastes Feeding Vermicomposting Materials What should not be Fed to Earthworms? How much Earthworm Eat How to Feed Earthworm? Vermicomposting : Types Small Scale or Indoor Vermicomposting Large Scale or Outdoor Vermicomposting In-situ Culturing of Earthworms Simple Promotion of Vermic Activity in Fields Development of Eathworms in Gardens and Orchards Large Scale Commercialized Vermicomposting in Open Heaps Vermicomposting : Requirements **Environmental Requirements** Air (Aeration) Moisture Content Temperature How to Construct a Worm Bin **Bedding Materials** Other Requirements Container Containers : Types Small Barrel or Drum Composter Large Barrel or Drum Composter Three-chambered Bin Making of three-chambered bin **Bedding Material** Ideal Conditions for Life of Earthworms Food for Worms Adding Food Waste **Proper Ingredient Mixture** Browns Greens Particle Size

Fertilizer and Lime pH Other Factor Affecting Earthworm's Growth Eathworm and Insects Tilling and Earthworm Population Earthworm and come Drounding Maintaining the Bin Harvesting the Compost and Worms General Problems in Production of Vermicomposting Remember

10. EXPERIMENTS FROM THE FIELD 151 Earthworms: Their Effect on Plant Growth Growing Vegetables Are Earthworms Alone? Effect on Soil Quality Soil Loss Adverse Effects on Crops Impact of Chemicals on Earthworms Impact of Heavy Metals Earthworms in Food Chains Earthworm Parasites

11. EARTHWORMS : THEIR APPLICATION IN ORGANIC AGRICULTURE 166
Organic Method Under Rainfed Conditions
I. Cultivation of Groundnut (per acre) (All costs in Indian ruppes) Cost of Field Preparation
Net Profit From Both Types of Cultivation (Per Acre)
II. Cultivation of Brinjal (Per Acre)
Net Profits from both Types of Cultivation (Per Acre)
III. Cultivation of Okra (Per Acre)
Net Profit from Cultivation
IV. Cultivation of Paddy
V. Cultivation of Sugarcane

12. WAYS TO MAKE COMPOST Selection of Suitable Species Epiges (Eisenia Foetida) Endoges (Eudrilus Eugeniae) Aneciques **Basic Characteristics of Suitable Species Composting Material : Preliminary Treatment** Vermicomposting Schemes Maintenance of Vermicomposting Beds Scheme One Scheme Two Scheme Three Scheme Four Scheme Five Scheme Six Harvesting the Worms and Compost Using Worm Compost Vermicomposting Efficiency

Transportation of Live Worms Vermicompost : Applications Flower or Garden pots In Horticulture In Agriculture Vermicomposts : Characterization Vermiwash Problems in Using Vermiwash Earthworm Paste Vermicomposting : General Procedure at Home Vermicomposting : General Procedures at Agricultural Farms Vermicomposting : Kiss Plan Advantages of KISS Plan Step 1: Windrow Preparation Important Considerations Step 2: Extending the Windrow Step 3: Making Quality Castings Step 4: Moisture and Irrigation Step 5: Windrow Cover Step 6: Harvesting Earthworms Predators and Parasites Mite pests in Earthworm Beds White or Brown Mites **Red Mites** Mite Prevention Removal of Mite Parasites and pathogens

13. EARTHWORMS : END USES AND POTENTIAL Earthworms in Medicine Earthworms as Feed

Economic Potential Legal Constraints Conclusion

**14. METHODS OF EARTHWORMS** MEASUREMENT Sampling Methods Hand Sorting Principle Materials Procedure Washing and Sieving Principle **Materials** Procedure Use of Chemical Repellants Principle Materials Procedure **Electrical Methods** Principle Materials

Procedure Trapping Methods Materials Procedure Other Method Flotation Heat Extraction Number of Casts Measurement of Earthworm Biomass Storage and Identification Storage Identification 15. VERMICOMPOSTING: A WORLD SCENARIO Grace McKellar Centre, Geelong, Victoria, Australia Hobart City Council, Tasmania, Australia National Institue of Environmental Health Sciences, Research Triangle Park, North Carolina, United States Newcastle City Council, New South Wales, Australia Oregon Soil Corporation, Beaverton, Oregon, United States Pacific Southwest Farms, Ontairo, California, United States Resource Conversion Corporation/Canyon Recycling, San Diego, California, U.S. Rideau Regional Hospital, Perth, Ontario, Canada San Quentin Prison, California Seattle Kingdome Stadium, Seattle, Washington, United States Sovadec, La Voulte, France Vermiculture Production Center, Pinar del Rio Province, Cuba Vermicycle Organics, Inc., Charlotte, North Carolina, United States India Green Cross Society of Mumbai, India Indian Aluminum Co. Ltd, Belgaum, India M.R. Morarka - GDC Rural Research Foundation, Jaipur **16. ROLE OF EARTHWORMS** In sustainable Agriculture **Organic Farming** Earthworms Activities Soil Fertility and Texture Soil Aeration Water Impercolation Decomposition and Moisture **17. MONITORING WORM BED ENVIRONMENT** Moisture Control Keeping Beds Warm during Winter Lighting Earthworm Predators or Annoyances Flies Mites White or Brown Mites Red Mites Hammerhead Worms Centipedes Ants Black Soldier Fly Larvae **Troubleshooting Worm Bed Conditions** 

Bedding Too Dry Red Mite Infestation **Deformed Worms 18. VERMITECHNOLOGY** Definition History In Other Coutries In India **19. ADVANTAGES OF VERMICULTURE** Production of Cheap Animal Protein Vermi Cast Soil and Vermi Cast Earthworm Inoculation in Soil Decomposition of Bio-Degradeable Wastes and VermiComposting Vermiculture in Pollution Abatement 20. VERMICULTURE General and Planning Selection of Suitable Species **Basic Characteristics of Suitable Species Description of Suitable Species** Family : Lumbricidae 1.Bimastos parvus (= Allolobophora (Bimastos) parvus Eisen) 2. Eisenia foetida (Sav.) Family : Eudrilidae 1.Eudrilus Eugeniae (Kinb.) Family : Megascolecidae 1.Lamptio mauritii (Kinb.) 2. Metaphire anomala Mich. (= Pheretima Anomala) 3. Metaphire Posthuma (= Pheretima posthuma) 4. Perionyx Excavatus E. Perr. 5. Perionyx sansbaricus Michaelson Family: Octochaetidae 1. Octochaetus (Octochaetoides) Surnensis Mich. 2. Ramiella Bishambari (Steph.) Sub-family : Diplocardinae 1. Dichogaster Bolaui (Mich.) 2. Dichogaster Affinis (Mich.) 3. Dichogaster Curgensis (Micha.) 4. Dichogaster Saliens (Bedd.) 5. Ramiella Bishambari (Steph.) 6. Erythodraeodrilus Suctorius (Steph.) 7. Ocnerodrilus (Ocnerodrilus) Occidentails (Eisen.) Family : Moniligastridae 1. Moniligaster Perrieri (Mich.) 2. Drawida Willisi (Mich.) Maintenance of Base Culture 21. VERMICOMPOSTING General

Advantages of Vermicomposting Vermicomposting Materials Preliminary Treatment of Composting Material Small Scale or Indoor Vermicomposting Large Scale or Outdoor Vermicomposting Other Types of Vemi-Composting Requirement for Vermicomposting Feed for Earthworms Vermicomposting Schemes Maintenance of Vermicomposting Beds Vermicomposting Efficiency Collection of Vermicompost Transportation of Live Worms Marketing Outlets

22. GRANULATION OF VERMICOMPOST Introduction Functions Methods Process Impact of Using Vermiwash as the Binding Media Vermicompost Fertilizer Granule Machine Feature Types of Granulator Machines • Disc Fertilizer Granulator

- Disc Fertilizer Granulator
- Double Roller Extrusion Granulator
- Organic Fertilizer Granulator
- New Type Organic Fertilizer Granulator
- Rotary Drum Granulator
- Cat Litter Disc Fertilizer Granulator

23. BIS SPECIFICATIONS

24.PHOTOGRAPHS OF MACHINERY WITH SUPPLIERS CONTACT DETAILS Vermi Compost Tank Sprayer Pump Rotary Drum Dryers Vermi Compost Maker Vermicompost Seiving Machine Leaf Waste Shredder Machine Packing Machine Waste Fully Automatic Compost Machine Rotary Twin Drum Composter Fertilizer Granule Machine Waste Compost Tumbler Waste Compost Machine Fertilizer Drum Granulator Machine Fertilizer Granulator Machine

25. PLANT LAYOUT & PROCESS FLOW CHART

## About NIIR

NIR 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.

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.

NIR PROJECT CONSULTANCY SERVICES , 106-E, Kamla Nagar, New Delhi-110007, India. Email: npcs.india@gmail.com Website: NIIR.org

Sat, 20 Apr 2024 01:37:22 +0530