

The Complete Technology Book on Vermiculture and Vermicompost

Author: NPCS Board of Consultants and Engineers

Format: Paperback

ISBN: 9788178331362

Code: NI116

Pages: 368

Price: Rs. 750.00 US\$ 100.00

Publisher: Asia Pacific Business Press Inc.

Usually ships within **5** days

The production of degradable organic waste and its safe disposal have become the current global problem. The rejuvenation of degraded soils by protecting topsoil and sustainability of productive soils is a major concern at the international level. Vermicomposting is compatible process with sound environmental principles that value conservation of resources and sustainable practices. Vermicompost is known to be the world best organic fertilizer. Vermiculture is for vermicompost. Vermiculture means artificial rearing or cultivation of worms (Earthworms) and the technology is the scientific process of using them for the betterment of human beings. Vermiculture technology has improved the crop productivity by increasing soil fertility through ecological methods of farming. Vermiculture has been embraced throughout the world right from the developed countries to the developing countries. Vermicomposting is a panacea for solid waste management. It is a simple kindred process of composting, in which certain species of microorganism such as earthworms are used to enhance the process of waste conversion and produce a better end product. Earthworms serve as nature plowman to facilitate these functions. They form gift of nature to produce good humus, which is the most precious material to fulfill the nutritional needs of crops. The utilization of vermicompost results in several benefits to farmers, industries, environment and overall national economy. This contains experiments from the field, vermicomposting materials, earthworm life cycle, ecological types earthworms, role of earthworms, vermicomposting, advantages of vermiculture, vermitechology. This book majorly deals with advantages of vermicomposting, vermicomposting in daily life vermiculture v/s vermicomposting, earthworms: ecological types, physical and chemical effects of earthworms on soils, fertilizers use and deterioration of soil environment, vermicomposting materials, feeding vermicomposting materials, ideal conditions for life of earthworms, earthworms : their application in organic agriculture, maintenance of vermicomposting beds, vermicomposting : general procedures at agricultural farms vermicomposting : kiss plan, vermicomposting: a world scenario, soil fertility and texture, advantages of vermiculture, small scale or indoor vermicomposting, large scale or outdoor vermicomposting etc. This book is an invaluable resource for readers, entrepreneurs, scientists, farmers, existing industries, technical institution, etc.

Contents

1. INTRODUCTION

Advantages of Vermicomposting

Vermicomposting in Daily life

Vermiculture v/s Vermicomposting

Vermitechology (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 Cocoon 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 Viability

7. 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

8. VERMICOMPOSTING MATERIALS

Animal dung
Agricultural waste
Forestry wastes
City leaf litter
Waste paper and cotton cloth etc.
City refuse
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 Earthworms 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

9. EXPERIMENTS FROM THE FIELD

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

10. EARTHWORMS : THEIR APPLICATION IN ORGANIC AGRICULTURE

Organic Method Under Rainfed Conditions
I. Cultivation of groundnut (per acre) (All costs in Indian rupees)
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

11. 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

12. EARTHWORMS : END USES AND POTENTIAL

Earthworms in Medicine
Earthworms as Feed
Economic potential
Legal constraints
Conclusion

13. EARTHWORMS : END USES AND POTENTIAL

The Future
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

14. VERMICOMPOSTING: A WORLD SCENARIO

Grace McKellar Centre, Geelong, Victoria, Australia

Hobart City Council, Tasmania, Australia

National Institute 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, Ontario, 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

15. ROLE OF EARTHWORMS

In sustainable Agriculture

Organic Farming

Earthworms Activities

Soil Fertility and Texture

Soil Aeration

Water Impercolation

Decomposition and Moisture

16. VERMITECHNOLOGY

Definition

History

In Other Countries

In India

17. ADVANTAGES OF VERMICULTURE

Production of Cheap Animal Protein

Vermi Cast

Soil and Vermi Cast

Earthworm Inoculation in Soil

Decomposition of Bio-Degradable Wastes and Vermicomposting

Vermiculture in Pollution Abatement

18. VERMICULTURE

General and Planning

Selection of Suitable Species

Basic Characteristics of Suitable Species

Description of Suitable Species

Family : Lumbricidae

1. *Bimastos parvus* (= *Allolobophora* (*Bimastosparvus* 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 bolau* (Mich.)

2. *Dichogaster affinis* (Mich.)

3. *Dichogaster curgensis* (Mich.)

4. *Dichogaster saliens* (Bedd.)

5. *Ramiella bishambari* (Steph.)

6. *Erythraeodrilus suctorius* (Steph.)

7. *Ocnerodrilus* (*Ocnerodrilus*) *occidentalis* (Eisen.) Family : Moniligastridae

1. *Moniligaster perrieri* (Mich.)

2. *Drawida willisi* (Mich.)

Maintenance of Base Culture

19. 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 Vermi-Composting
Requirement for Vermicomposting
Feed for Earthworms
Vermicomposting Schemes
Maintenance of Vermicomposting Beds
Vermicomposting Efficiency
Collection of Vermicompost
Transportation of Live Worms
Marketing Outlets

DIRECTORY OF VERMICULTURE RESOURCES

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.

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

Wed, 26 Jun 2019 20:25:54 +0530