



Rayat Shikshan Sanstha's

# **Dahiwadi College, Dahiwadi**

Tal-Man, Dist.- Satara

## **A Syllabus of Vermiculture and Vermicomposting**

For

### **Karmveer Bhaurao Patil Livelihood Business Incubation Center**

Supported by

Under the Scheme of ASPIRE

**Ministry of Micro, Small and Medium Enterprises,  
Govt. of India, New Delhi**

**Year: 2022-2023**

## TRAINING MODULE: VERMICULTURE AND VERMICOMPOSTING

Coordinator: Mr. H. G. Kayande

### I) Aims and Objectives:

- Students will be able to compost in a limited space and describe the decomposing process.
- The interested students will get the knowledge of composting.
- Students will get the employment.
- They can generate employments.
- They will also turn towards organic farming,
- They will help to maintain the environment pollution free.
- They will get the knowledge of biodiversity of local earthworms.

### II) Structure of Syllabus:

Theory Syllabus	70 Hours
Practical Syllabus	170 Hours
Total	240 Hours

## SYLLABUS

### Theory Syllabus

**Total: 70 hours**

#### Unit I: General Vermiculture

**(15 Hrs.)**

1. Introduction to vermiculture. definition, meaning, history, economic important, their value in maintenance of soil structure, role as four's of recycling reduce, reuse, recycle, restore.
2. His role in bio transformation of the residues generated by human activity and production of organic fertilizers. How does nature works.
3. The matter and humus cycle (product, qualities). Ground population, transformation process in organic matter.
4. Choosing the right worm. Useful species of earthworms. Local species of earthworms. Exotic species of earthworms. Complementary activities of auto evaluation.

#### Unit II: Earthworm Biology and Rearing

**(15 Hrs.)**

1. Key to identify the species of earthworms.

2. Biology of *Eisenia fetida*. a) Taxonomy Anatomy, physiology and reproduction of Lumbricidae. b) Vital cycle of *Eisenia fetida*: alimentation, fecundity, annual reproducer potential and limit factors (gases, diet, humidity, temperature, PH, light, and climatic factors). Complementary activities of auto evaluation.
3. Biology of *Eudriluseugeniae*. a) Taxonomy Anatomy, physiology and reproduction of Eudrilidae. b) Vital cycle of *Eudriluseugeniae*: alimentation, fecundity, annual reproducer potential and limit factors (gases, diet, humidity, temperature, PH, light, and climatic factors). Complementary activities of auto evaluation.

**Unit III: Vermicomposting Technology (15 Hrs.)**

1. Small Scale Earthworm farming for home gardens - Earthworm compost for home gardens
2. Conventional commercial composting - Earthworm composting larger scale
3. Earthworm Farming (Vermiculture), Extraction (harvest), vermicomposting harvest and processing.
4. Nutritional Composition of Vermicompost for plants, comparison with other fertilizers
5. Vermiwash collection, composition & use
6. Enemies of Earthworms, Sickness and worm's enemies. Frequent problems. How to prevent and fix them. Complementary activities of auto evaluation.

**Unit IV: Product and Marketing (15 Hrs.)**

1. Effect of vermicompost application on soil and plant growth,
2. Vermicompost as a organic manure a good substitute of fertilizers.
3. Influence of pests and microbes on vermiculture, measures to control them.
4. Marketing of vermicomposting products and financial support by governments and NGOs for vermiculture.

**Unit V: Agriculture Product Marketing (10 Hrs.)**

Co-operative Credit Societies- Functions, Structure Importance and Problems, District Central Co-operative Banks - Functions, Structure , Importance and Problems, State Co-operative Banks- Role and urban, Urban Co-operative Banks, Nationalized Banks, Regional Rural Bank, Need and Importance, Structure, development and present position of Co-operative Marketing, Problems and Remedies of co-operative marketing, Role of NAFED, E-Marketing, Role of Co-operative Processing Societies in Development, Sugar Co-operatives – Present Position and Problems, Dairy Co-operatives- Present Position and Problems, Poultry Farming, Cotton Industry, Horticultural, Floricultural and Medical Plants Process Industry, Fisheries, Meaning & definition of Agriculture Transport, Role of Transportation in agriculture, Types of Transportation, Importance of Transportation in Agriculture.

## Practical Syllabus

**Total: 170 Hours**

1. Key to identify different types of earthworms.
2. Field trip- Collection of native earthworms & their identification.
3. Study of Systematic position, habits, and habitat & External characters of *Eisenia fetida*.
4. Study of Life stages & development of *Eisenia fetida*.
5. Study of Life stages & development of *Eudriluseugeniae*.
6. Comparison of morphology & life stages of *Eisenia fetida* & *Eudriluseugeniae*.
7. Study of Vermiculture, Vermiwash & Vermicompost equipments, devices.
8. Preparation vermibeds, maintenance of vermicompost & climatic conditions.
9. Harvesting, packaging, transport and storage of Vermicompost and separation of life stages
10. Study of verms diseases & enemies.
11. Study the effects of vermicompost & vermiwash on any two short duration crop plants.
12. Study the effects of sewage water on development of worms.
13. Project Report.

## References:

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2. Dash, M.C., B.K.Senapati, P.C. Mishra (1980) "Vermis and Vermicomposting" Proceedings of the National Seminar on Organic Waste Utilization and Vermicomposting Dec. 5-8, 1984, (Part B), School of Life Sciences, Sambalpur University, Jyoti Vihar, Orissa.
3. Edwards, C.A. and J.R. Lofty (1977) "Biology of Earthworms" Chapman and Hall Ltd., London.
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8. Christy, M. V. (2008) Vermitechnology, 1st edition, MJP Publishers.
9. Dash, M. C. (2012) Charles Darwin's Plough Tool for Vermitechnology, I. K. International Publishing House Pvt Ltd. New Delhi, India.
10. Kumar, A. (2005) Vermis and Vermitechnology, APH Publishing.
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12. National Institute of Industrial Research, (2010): The Complete Technology Book on Vermiculture and Vermicompost, Published by National Institute of Industrial Research, Delhi-7, India.
13. Sinha, R. K. *et.al* (2010) Vermitechnology-The Emerging 21st Century Bioengineering technology for sustainable development and protection of human health and environment- Review, Dynamic Soil and Dynamic Plant, Global Science Books.
14. Sharma S. *et .al*, (2009) Earthworm and Vemitechnology –Review, Dynamic Soil and Dynamic Plant, Global Science Books.
15. Chauhan, A. (2012) Vermitechnology, Vermiculture, Vermicompost and Earthworms: Vermiculture, Vermicomposting, Vermitechnology and Miobes,Lambert Academic Publishing, Germany.

### **III) Examination Pattern:**

Theory: 60

Practical: 140

Total Marks: 200

### **IV) BOS:**

Dr. M. J. Lubal- Chairman

Mr. H.G. Kayande - Coordinator

Dr. T.S. Patil- Expert

Dr. A. N. Dede- Expert

Miss. D.M. Waghmare- Expert

