Syllabus For VERMI COMPOST PRODUCTION(RPL)

Course Name	**VERMI COMPOST PRODUCTION(RPL)**
Sector	**AGRICULTURE**
Course Code	**AGR/2021/VCP1/0025**
Level	**4 (RPL)**
Occupation	**VERMI COMPOST PRODUCTION**
Course Duration	**Total Duration 37.5 Hrs (T- 12 , P- 25.5)**
Trainees' Entry Qualification	**Class VIII Pass with 5 years experience in the relevant field**
Trainers Qualification	**Graduate / Masters in Sciences / Commerce / BSC in Agriculture with 3 Years' experience in relevant field.**

SYLLABUS:

DAY	TOPIC	SYLLABUS	METHOD
1st	Importance of organic manure in modern agriculture	Declining fertility due to chemical input, role of organic manure to improve soil fertility, productivity and quality of produce, reduction in input cost ,sustainability in production systems	Theoretical
	Introductory session on organic manure and vermicompost	Different types of organic manures-FYM, compost, enrich compost, phosphor compost vis-à-vis vermicompost	
	Nutritional status of vermicompost	Content of macro, secondary and micronutrients, nutrient availability, water soluble nutrients, vitamins , growth regulators, comparison with other composts	
	Importance of vermicompost on soil health	Definition of soil fertility, productivity, quality and soil health. Role of vermicompost on soil chemical, physical and biological properties	
	Introductory session on different earthworm species used in vermicomposting	Types of earthworm on the basis of their habitat (epigeic anecic and endogeic) and feeding behaviour, *Eisenia foetida, Perionyx excavates, Eudralis eugineae*	
	Special characteristics and behaviour of earthworm	characteristics of earthworm suitable for vermicomposting, versatile and widely adapted earthworm	
	Anatomy of earthworm	Heart, brain, alimentary canal, gizzard, calciferous gland, hermaphrodite, male and female organ	
	Explain the decomposition of raw materials	Role of microbes in decomposition, factors influencing decomposition-C:N ratio, moisture, temperature, pH, turning etc, reduction in mass and volume, changes in colour and texture of raw material	

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	Selection of raw material for vermicompost production	Animal dung, crop residues, poultry litter and drops, water hyacinth, non-obnoxious weeds, vegetable wastes, market waste, canteen wastes (non oily)	
	Do,s and Do nots in vermicomposting	Do's- blending green and brown materials, small sized material, feeding with staggered way, Do nots- fresh dung, plastic, glass, oily food, putrefied kitchen waste, pesticide treated materials, garlic and onion clips etc. overload the pit with food staff.	
	Discussion on different methods of vermicomposting	Heap, pit and poly-vermi method for vermicomposting- dimension of heap pit and poly -vermi bed	
2nd day	Step by step process for vermicomposting from partially decomposed material	Pre-decomposition of raw materials for 15 days, load the pre-decomposed materials in pit/heap/poly-vermi bed	Theoretical
	Release of earthworm on vermibed	No of adult worms/kg decomposing composting materials or per square fit	
	Intercultural operation (including control of predetors)	Regular watering, covering composting material with gunny bag, Flies, Ants, rat and birds are the predators, insecticide, rodenticides and use of net around the vermished.	
	Harvesting and collection of casting	Withdrawal of watering 2-3 days before harvesting, collection of cast from upper surface without hampering the worm	
3rd	Procedure for decomposition of raw materials	Preparation of composting substrate with organic waste, dung, soil following specific ratio, covering with polythene sheet, (wait for 15 days with midterm turning)	Practical
	Moisture and temperature test for partially decomposed materials	Moisture by thumb rule/laboratory method, temperature by thermometer	
	Preparation of vermistructure for vermicomposting	Heap/pit method, poly-vermi bed under shed.	
	Release of earthworm on vermibed	Inoculation of earthworm on the basis of per kg pre-decomposed material or per square fit area	
	Intercultural operations	Watering, covering with wetted gunny bag or straw	
	Different techniques for protecting earthworm from ants	Use of insecticide around heap/pit, *laxman rekha*, water barrier around the pit/heap, spraying of turmeric powder solution	
	Harvesting of vermicompost	Withdrawal of watering 2-3 days before harvesting, collection of cast from upper surface without hampering the worm	
	Seiving, storing	Manual/mechanical sieving, weighing,	

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	packaging	sealing, packaging in bags, storing in shed.	
4th	Repetition the techniques for confidence building on vermicomposting	Individual/group demonstration by the trainees, troubleshoot and on spot solution	Practical
5th	Exposure visit to vermicomposting unit	Visit to nearby commercially developed vermicompost production unit, interaction with the person attached to the unit	Practical
6th	Enrichment of vermicomposting with different ingredients	Use of N-rich raw materials, rock phosphate, biofertilizers etc.	Theoretical
	Problem and prospect of vermicompost	High maintenance, pest/predators and pathogen, tedious harvesting High demand in organic and integrated nutrient management, employment generation	
	Economics of vermicomposting	Benefit : Cost analyses	
	Entrepreneurship development on vermicomposting	Preparation of bankable plan, marketing, risk assessment	

LIST OF TOOLS AND EQUIPMENT			
COURSE NAME: Vermicompost Producer			
Sl. No.	**Name of the Tool & Equipment**	**Specifications**	**Quantity**
1.	Weighing Machine	0.5 - 100 kg capacity	1 no.s
2.	Bucket	10 L / 10 kg capacity	2 no.s each
3.	Mug	500 ml capacity	5 no.s
4.	Spade	Big size	2 no.s
5.	Belcha	Normal type	2 no.s
6.	Hoe	Fork type	2 no.s
7.	Basket	Medium size	5 no.s
8.	Polythene pipe	1" diameter	50 ft
9.	Plastic drum	500 L capacity	2 no.s
10.	Polythene sheet	Black	50Kg
11.	Chaff cutter Machine	5 HP	1 no.
12.	Sewing machine (For sewing gunny bags / polythene bags for packaging)	-	1 no.
13.	Oven	160 L (40°C - 140°C)	one
14.	Rock phosphate	-	100 kg
15.	Aluminium moisture box	2.5" diameter	30 no.s
16	Concrete pole with straw roof Vermished and bed/poly-vermibed	Shed: 20.0' x 6.5' Bed : 10' x 4' x 1.5'	2 units
17.	Electrically driven sieving machine for screening of compost.	5HP 6'' x 4''	1 no.s
18.	Pitcher	10 L capacity	5 no.s
19.	Gunny bag		50 no.s
20.	Gloves and mask		30 no.s
21.	Pesticides (gamaxon) / Laxmanrekha		1 kg / 1 packet