

Syllabus for Vermiculture and Vermicomposting (UG Course)

Unit – I (Vermiculture)

1. About Earthworm:

Basic body structure of earthworm (General body plan, Prostomium, Peristomium, Metamerism, Cuticle, Setae, Different body pores, Clitellum, Digestive system).

2. Earthworm Ecology:

Distribution; Food habit and habitat; Ecological requirements: moisture, temperature, pH, organic matter etc.; Ecological categories: Epigeic, Endogeic and Anecic earthworms; Ecosystem services i.e. role played by earthworms in soil ecosystem.

3. Reproduction:

Hermaphroditism, Copulation and cocoon formation, Cocoon structure, Incubation period of cocoon in vermicomposting earthworm, Fecundity in surface dwelling (epigeic) and soil dwelling (endogeic and anecic) earthworm.

4. Vermiculture:

Definition, Difference between vermiculture and vermicomposting, Selective features of earthworms for vermiculture and vermicomposting, Method of vermiculture of phytophagous and geophagous earthworm, Utility of vermiculture (protein source for pisciculture, poultry farming, piggery etc., application in vermicomposting).

Unit – II (Vermicomposting)

1. Vermicomposting:

Definition, Habitat of vermicomposting earthworms, Scientific names of native and exotic vermicomposting earthworms (Native Indian earthworms: *Perionyx excavatus*, *Perionyx ceylanensis*, European earthworms: *Eisenia fetida*, *Eisenia andrei*, South African earthworms: *Eudrilus eugeniae*), Selective features of earthworm species for vermicomposting.

2. Principle of vermicomposting, Components of the vermicomposting system (Appropriate species of earthworms with suitable population characteristics, proper substrate, optimum environmental factors under Indian condition, Design and operations to be implemented).
3. Methods of vermicomposting – (a) Low cost floor beds, (b) Tank system; Management during vermicomposting; Products of vermicomposting: earthworm biomass (vermiprotein) and vermicompost.
4. Definition of vermicompost; Physicochemical features of vermicompost; Role of earthworm and vermicompost in growth of plants; Vermiwash and its utility in agriculture.