



FACULTY OF AGRICULTURAL SCIENCES & ALLIED INDUSTRIES

ENT-121: Fundamentals of Entomology

Unit-III

Lecture 23: Types of Pest, IPM Concept and Importance of Chemical Control:

Pest: A pest is any animal or plant harmful to humans or human concerns. The term is particularly used for creatures that damage crops, livestock, and forestry or cause a nuisance to people, especially in their homes. Humans have modified the environment for their own purposes and are intolerant of other creatures occupying the same space when their activities impact adversely on human objectives.

Categories of Pests:

Regular pest: Frequently occurs on crop - Close association e.g. Rice stem borer, Brinjal fruit borer

Occasional pest: Infrequently occurs, no close association e.g. Caseworm on rice, Mango stem borer

Seasonal pest: Occurs during a particular season every year e.g. Red hairy caterpillar on groundnut, Mango hoppers

Persistent pests: Occurs on the crop throughout the year and is difficult to control e.g. Chilli thrips, mealy bug on guava

Sporadic pests: Pest occurs in isolated localities during some period. e.g. Coconut slug caterpillar

Based on level of infestation

Pest epidemic: Sudden outbreak of a pest in a severe form in a region at a particular time e.g. BPH in Tanjore, RHC in Madurai, Pollachi

Endemic pest: Occurrence of the pest in a low level in few pockets, regularly and confined to particular area e.g. Rice gall midge in Madurai, Mango hoppers in Periyakulam

Parameters of insect population levels

General equilibrium position (GEP) The average density of a population over a long period of time, around which the pest population over a long period of time, around which the pest population tends to fluctuate due to biotic and abiotic factors and in the absence of permanent environmental changes.

Economic threshold level (ETL) Population density at which control measure should be implemented to prevent an increasing pest population from reaching the ETL.

Economic injury level (EIL) The lowest population density that will cause economic damage

Damage boundary (DB) The lowest level of damage which can be measured. ETL is always less than EIL. Provides sufficient time for control measures.

Concept of IPM:

Integrated Pest Management- In 1967 the term IPM was introduced by R.F. Smith and R. van den Bosch.

In 1985 India declared IPM as official Ministerial Policy

IPM is an ecosystem-based strategy that focuses on long-term prevention of pests or their damage through a combination of techniques such as biological control, habitat manipulation, modification of cultural practices, and use of resistant varieties. Pesticides are used only after monitoring indicates they are needed according to established guidelines, and treatments are made with the goal of removing only the target organism. Pest control materials are selected and applied in a manner that minimizes risks to human health, beneficial, no target organisms, and the environment.

Component of IPM:

1. Physical Control
2. Mechanical Control
3. Legal Control
4. Cultural Control
5. Host Plant Resistance
6. Biological control
7. Chemical Control and Importance of Chemical Control