



Concepts and Principles of Pest Management



1. Understanding the Agricultural Ecosystem

- **Agro ecosystem contains a lesser diversity of animal and plant species than forests.**
- **Intensively manipulated by humans and subject to sudden alteration -ploughing and treatment with pesticides.**
- **More susceptible to pest damage.**



2. Planning the agroecosystem

- Applied agroecosystem planning should anticipate pest problems and ways to avoid them.
- Crop variety should not be grown if it is known to be unusually susceptible to pest attack, thereby intensifying the need for control activity.
- Ex:

1. Soybean: Pubescent type- resistant to potato leaf hopper, *Empoasca fabae*.

Glabrous type - susceptible to potato leaf hopper.

2. Cotton: Pubescent type- resistant to potato leaf hopper, *Amrasca biguttula biguttula*.

Glabrous type – susceptible to potato leaf hopper.



3. Cost/ benefit and Benefit/ Risk:



- Farmers - more concern about Cost/benefit.
- Depends on the decisions-
Varies with the crop produce,
method of production and
geographical location of production unit.

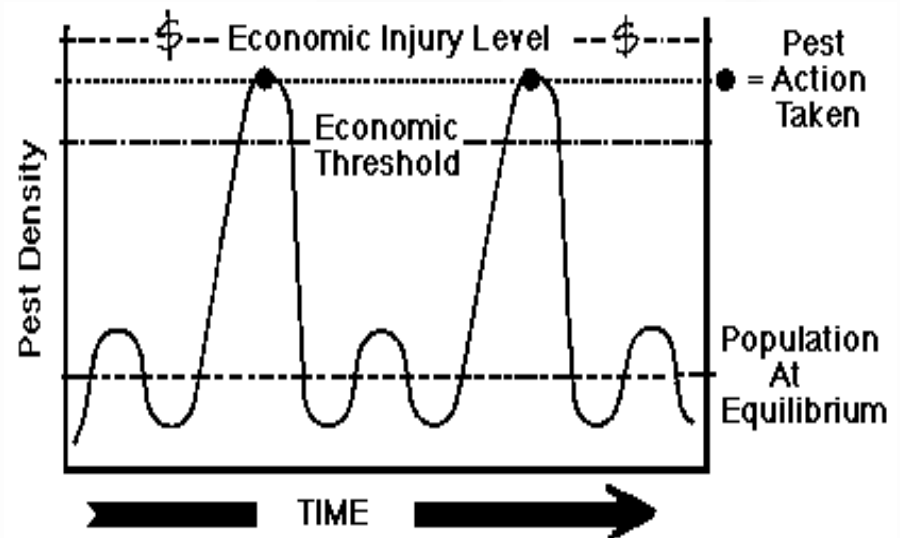
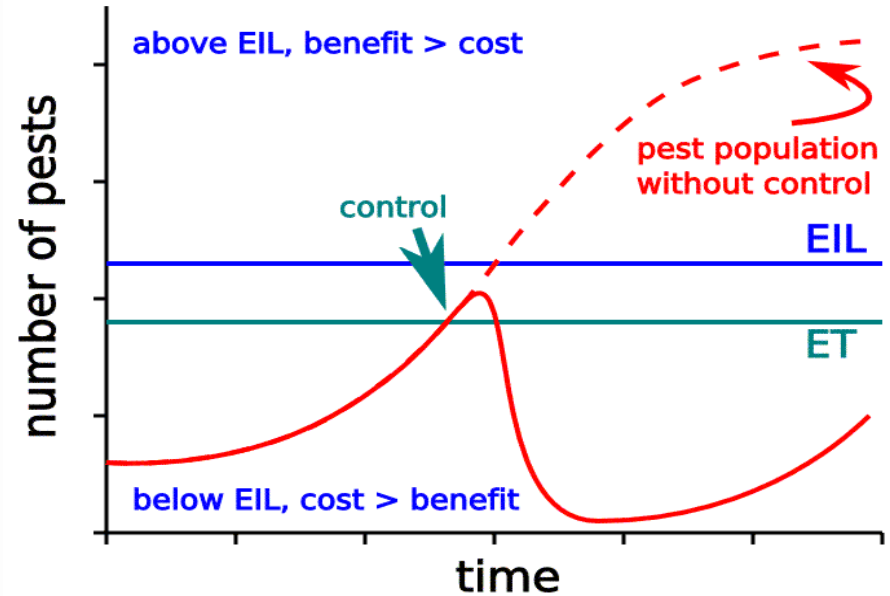


- i. **Cost /benefit:** Should be >1 .
- ii. **Benefit/ Risk:** Provides a means for assessing the relevant economic benefits versus the risk in pesticide control.



4. Tolerance of Pest Damage:

- Economic threshold is probably the best known term and most widely used.
- **Economic threshold level (ETL):**
Population density at which control measures should be implemented to prevent an increasing pest population .



5. Leaving a pest residue

- Important to leave a permanent pest residue, below the economic threshold.
- Concept is to suppress a pest but not annihilate the pest.



6. Timing of the treatments

- Crucial problem in successful pest management is the proper timing of insecticide treatment.
- Based on need and a single spray properly timed can often prevent excessive spraying.
- **Ex:** Use of pheromone traps for activity of adult.



7. Public understanding and acceptance

- **Educating people about pest management is the most important way to deal with insect pest problem.**
- **No programme is any more successful than the degree of commitment made by the people involved.**

