

III. PRINCIPLES OF INSECT TOXICOLOGY

Organisms which are harmful to man or its property are called pests. Chemicals which kill these pests by their chemical action are collectively termed as pesticides. The pesticides include:

- ✓ Acaricides - for the control of mites and ticks
- ✓ Algicides - for the destruction of algae and other aquatic vegetation.
- ✓ Arboricides - for the destruction of undesirable arboreal and bush vegetation.
- ✓ Bactericides - for the control of bacteria and bacterial diseases of the plants.
- ✓ Fungicides - for the control of fungi
- ✓ Herbicides - for the destruction of weeds
- ✓ Insecticides - for the control of insects
- ✓ Molluskicides - for the control of various molluscs.
- ✓ Nematicides - for the control of nematodes.
- ✓ Rodenticides - for the control of rodents.

Use of insecticides is the first line of defence in controlling the insect out-breaks. They control large populations of insect pests effectively and immediately.

A time honoured principle in the insecticidal control of pests is to strike the weakest link of the life cycle of the pest. This evidently requires a knowledge of insect's identity, life history and behaviour. Further, it is important to decide by making an overall assessment of the loss made by a particular pest or groups of pests whether it is justified to use an insecticide? Such a justification depends on the calculation of the cost of the insecticidal operation which must be commensurate to the extent of damage and which should normally bring profit to the farmers.

The next step is the proper selection of insecticide or group of insecticides the use of which brings least disruption in the eco-system. All these steps are summarised below:

1. Insecticides be able to strike the weakest link of the pest hence the identity, life history and behaviour of the pest be known.
2. Assessment of loss, nature and extent of damage and the economics involved in it be properly calculated to justify the use of insecticides.
3. Proper selection of insecticide or combination of insecticides be made by prior evaluation.
4. Insecticides should be of such nature and quality that they bring about least disruption in the eco-system and remain restricted in the area where they are used.

IV. SCOPE OF INSECT TOXICOLOGY

Insect toxicology plays an important role in controlling insect pests in the field of agriculture, forestry and public health. Toxic chemicals so far are the main defence against pest attacks and it is very likely that chemical control would continue as the main control measure for many years to come. No doubt there are a number of other control measures but none of them match in their efficacy, speed, stability and cost of operations with chemical control measures. Moreover, control of pests through pesticides generally covers a wide spectrum which evidently gives an edge over other methods which are by and large specific in their action. In view of these facts, the science of insect toxicology promises a better and brighter scope.