

# PESTICIDES AS A COMPONENT OF IPM

**MARIO V. NAVASERO**  
*Scientist I*

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**National Crop Protection Center**  
College of Agriculture and Food Science  
University of the Philippines Los Banos  
College, Laguna 4031

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# **Integrated Pest Management**

**IPM is the combination of all appropriate practices into a single plan for crop and pest management that optimizes use of inputs to reduce pests population and damage to an acceptable level, maximize yield, and minimize negative effects**

# **Pest Management Strategies**

**Do-nothing strategy**

**Reduce pest numbers**

**Reduce host susceptibility to pest injury**

## **Do-Nothing Strategy**

**When external factors are not favorable to build up of pests population**

**When natural control factors (biotic) are working**

**When a successful pest management program reduces pest population**

## **Do-Nothing Strategy**

**However, this does not imply that no effort or action is necessary. Surveillance should be continuously done.**

# **Reduce Pest Numbers**

**Most frequently used strategy**

**Preventive manner based on historical problems**

**Curative or therapeutic when population reach economic threshold**

# Reduce Pest Numbers

## Tactics Employed:

- Resistant host (antibiosis, preference, transgenic plants)
- Mechanical trapping
- Natural enemies
- Insect growth regulator
- Released of male-sterile insects
- Modification of the environment
- Protected structures

# **Reduce host susceptibility/ exposure to pest injury**

- **Resistant hosts (tolerance) -**  
**Does not reduce pest population but injury has less detrimental effect on the host**
- **Ecological modification -**
  - **Synchronous planting**
  - **Timing of planting to create asynchrony between a pest and susceptible plant stage**



# Components of IPM



## **Mechanical Control**

- Soil cultivation
- Traps
- Hand collection
- Hand weeding
- Rouging

## **Physical Control**

- Crop rotation
- Land preparation
- Use of clean certified seed/planting materials
- Time of sowing
- Plant spacing
- Timing and amount of fertilizer
- Weeding
- Type, timing and amount of irrigation

## **Sanitation**

- Removal of infected crop material
- Plowing and burning of crop residues
- Using nets and screens

## **Biological Control**

- Parasitoids
- Predators
- Disease causing organisms
- Pheromone as attractant/trap
- Biorationals

# **When To Use Pesticides**

**Use only when pests are causing, or will cause economic loss or damage**

## **Preventive use of pesticides**

- as seed dressing for soil pathogens or pests occurring during early growth stage of the crop**
- vector control to limit virus infection**

**Despite advances in IPM implementation, pesticide usage has increased in many developing countries and remains the exclusive tactic to control pests**

# **Selection of Control Strategies/ Tactics**

**Effectiveness**

**Availability**

**Practicality**

**Economical**

**Safety**

# **Advantages of Pesticides**

**Provide effective and quick solution**

**Control several pests**

**Readily available**

**Easy to use**

# **Disadvantages of Using Pesticides**

- **Potential risks to user and to the environment**
- **Temporary solution**
- **Can be costly**
- **Can kill natural enemies**
- **Can cause pest resurgence**
- **Development of pest resistance**

# Measures to Address and Minimize Disadvantages of Using Pesticides

- **Select reduce-risk pesticides**
  - **Non-toxic or low toxicity to non-target organisms**
  - **Non-persistent**
- **Use the recommended rate**



## **Measures to Address and Minimize Disadvantages of Using Pesticides**

- **Use of proper protective equipment**
- **Proper waste disposal**
- **Product stewardship**

## **Measures to Address and Minimize Disadvantages of Using Pesticides**

- Campaign against the use of counterfeit or unregistered pesticides**
- Alternate use of insecticides with different mode of action (insecticide resistance management)**

***Thank You***