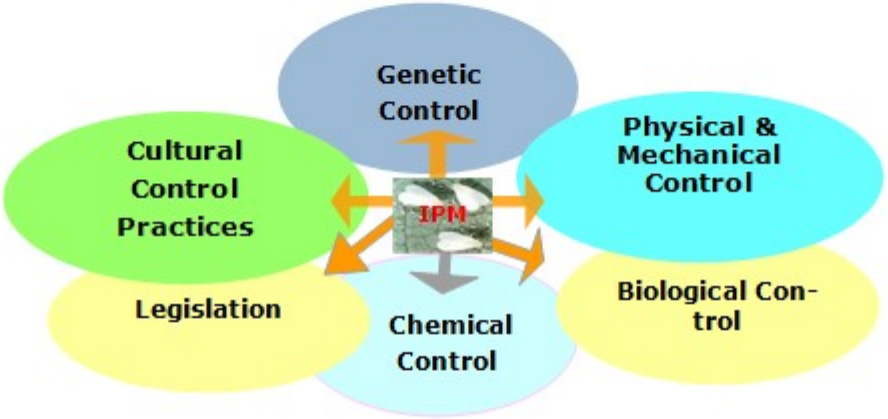
Pest Control

The Integrated Pest Management (IPM)Approach



Genetic Control Methods

Some pests can be modified genetically to prevent them from performing normally and some plants can be bred to be resistant or more tolerant to plant pests.

For example:

1.Sterile Insect Technique (SIT)

Scientists use of radiation and mutagenic chemicals to sterilize the males of some insect species.

These sterile males are released and though they will mate with the female insects in the field, they will not reproduce.

SIT is used to control/eradicate fruit fly populations.

2.Disease Resistant Varieties of plant species.

Fusarium wilt of banana (Panama Disease) is one of the most destructive fungal disease of bananas in the world.

Breeding programs like that of *Fundación Hondureña de Investigación Agrícola (FHIA)* clone the banana germplasm resistant to the disease and make the planting material available internationally.

Cultural Control Methods

Cultural control methods use good agricultural practices to prevent or reduce pest numbers and include:

- The use of healthy pest free material for planting
- Providing adequate water and proper nutrition for plants. However, avoid over use of nitrogen fertilizer, including manures as succulent growth will increase insect attack.
- The provision of adequate spacing for the plants. Closely spaced plants are more susceptible to fungal attack.
- Examination of plants regularly (especially the underside of leaves) for early detection of pests.
- Keeping fields free of weeds and volunteer plants (good sanitation). These can serve as alternate hosts for serious pests
- Practice crop rotation. Do not plant the same crop on the same plot of land season after season as this will lead to a buildup of pest populations to very high levels

Biological Control Methods

Biological control uses predators and parasitoids to effectively control some insects.

Predators that eat insect eggs and larvae include; green lacewings, ladybird beetles and pirate bugs.



Parasitoids include the female of a small wasps, e.g. *Encarsia formosa*.

The adults of these tiny, stingless, wasps can deposit their egg inside the larvae, pupae or eggs of pests, causing them to become black or amber in colour. As the young wasp feeds it kills the pest. Each parasitic wasp can lay as many as 50 - 100 eggs. In whitefly for example, the new wasp develops inside the pupa and emerges after 20 days.

Physical & Mechanical Control Methods

Physical and mechanical pest control includes a wide variety of devices that keep out, entrap, entangle or electrocute pests.

These methods can be as easy as picking a caterpillar from a tomato plant or as sophisticated as insect proof screen houses and the use of electronic bug killers. Some of the devices are often more practical for individual gardeners or homeowners than for farmers.

Examples of trapping devices include:

Yellow Sticky Traps used for the control of whiteflies

Trap with Pheromone Lure used to attract and trap sweet potato weevil

Metal bands around the trunk of fruit trees to prevent attack from rats and iguanas

Growing **Companion plants** such as Marigold and Nasturtium in or around the field can repel or trap some insects. Species of the mint family can also serve as a whitefly repellent or trap crop.




Integrated Pest Management approach encourages the use of all or a combination of appropriate pest control tactics into a single plan to reduce pests and their damage to an acceptable level.