

4. Mass production of *Metarhizium anisopliae*

Metarhizium anisopliae,

Sorok. is an entomopathogenic fungus that infects insects that come in contact with it. Once the fungus spores attach to the surface of the insect, germinate and begin to grow, they then penetrate the exoskeleton of the insect and grow very rapidly inside the insect causing the insect to die. Other insects that come in contact with infected insects also become infected with the fungus.



5. Mass production of *Trichoderma harzianum*

Trichoderma harzianum is

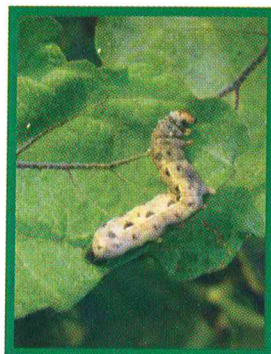
used for foliar application, seed treatment and soil treatment for suppression of various disease causing fungal pathogens. It also known as the compost fungus activator.



6. Mass production of Nuclear-Polyhedrosis Virus (NPV)

Nuclear-Polyhedrosis Virus

(NPV) it is a natural regulating agents infecting larvae and can spread rapidly through population and cause dramatic epizootics. In the field, this virus-containing liquid is spread over the plant and is fed on by other larvae and dies 4-7 days after ingesting the virus.



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**PROMOTES
BIOLOGICAL CONTROL
BASED
PEST MANAGEMENT**

Biological control is an environmentally sound and effective means of reducing or mitigating pests and pest effects through the use of natural enemies. It is a natural control strategy that employs biological agents for pest suppression. In conventional usage, this term usually refers to the practice of rearing and releasing natural enemies: parasites, predators, or pathogens.

Advantage of using biological agents

1. Offers longer term management than the more traditional control method.
2. Cost for control is typically lower to relative to more traditional control procedures.
3. Free of side effects
4. Safe to handle or use
5. Occurs naturally
6. High degree of host specificity
7. Cost effective
8. Self perpetuation

Program Activities

1. Establishment of **Village type Biological Control Laboratory Objective**

To popularize and make available steady source of biological control agents to farmer as substitute to chemical pesticides in controlling pests of various agricultural crops thus reducing environmental and occupational hazards to farming communities.

The Socio-Economic Benefits

The Project is expected to generate the following socio-economic benefits:

- Added family income to the household operator of P 6,583 to P7,000 per month.
- Productive utilization of housewife's idle time in tending the village-type mass-rearing laboratory.
- Savings of 2-4 liters of insecticides per hectare by farmer worth P2,000.00 to P4,000.00/ha/season.
- Reduced environmental (e.g., to non-target beneficial organisms) and occupational hazards (e.g., to farmers who otherwise will use insecticides for the control of insect pests of their crops).

Existing/established Biological Control Laboratories

1. Bureau of Plant Industry - Crop Protection Division
2. Regional Crop Protection Centers (RCPC's)
3. Three Central Laboratories with five (5) satellite laboratories each
 - National Food Corporation - Ilocos Norte
 - Office of the Provincial Agriculture - Negros Occidental
 - University of Southern Mindanao (USM) - Mindanao

Bio-control Agents

1. Mass production of *Trichogramma evanescens/chilonis*

Trichogramma an egg parasitoid of lepidopterous pests that can be used against corn borer, shoot borer, corn earworm/tomato fruitworm, etc.



2. Mass rearing of lacewing (*Chrysopa sp.*)

Green lacewing is a valuable predator that feeds on a wide variety of injurious pests such as aphids, scale insects, mealy bugs, mites, hoppers and caterpillars.



Earwig is a predator that feeds on eggs, larvae and nymphs of smaller soft-bodied insects.

3. Mass rearing of earwig (*Euborellia sp.*)

Earwig is a predator that feeds on eggs, larvae and nymphs of smaller soft-bodied insects.

