Pest Management

Pest Management

Integrated Pest Management (IPM) is an ecosystem-based strategy that focuses on long-term prevention of pests or their damage through a combination of techniques such as biological control, habitat manipulation, modification of cultural practices, and use of resistant varieties. Pesticides are used only after monitoring indicates they are needed according to established guidelines, and treatments are made with the goal of removing only the target organism. Pest control materials are selected and applied in a manner that minimizes risks to human health, beneficial and nontarget organisms, and the environment.

Chemicals (e.g., insecticides, herbicides, rodenticides) can be broad-spectrum (non-selective) or narrow-spectrum (selective), and can be organic or inorganic. Chemicals used to regulate pest abundance can act as nerve toxins (for insects and mammals) and growth regulators/inhibitors. Chemicals can also be used to affect pest abundance through more indirect means, such as releasing pheromones to disrupt breeding behavior and interfere with mating. Chemical pesticides are often toxic to non-target organisms including the pest's natural enemies, can persist in the environment affecting water supply, soil productivity, and air quality, and can be biomagnified in the food chain. Inappropriate use of pesticides can result in target pest resurgence from killing off natural enemies, secondary pest outbreaks by removing natural enemies of other organisms and allowing them to rise to pest status, and evolved resistance to the pesticide.

Biological control of pests is eco-friendly and non-harmful to living organisms. Entomopathogenic microorganisms such as Bacillus thuringiensis, Verticilliumlecanii, Beauveriabassiana and Metarzhiumanisopliae are found to be suitable microbes which can colonize the pests and drain the nutrients of host pest. These microbes can survive in soil environment by consuming plant debris as substrates for their growth.

Myco-B2

(Beauveriva bassiana)

Myco-B2

Myco-B2 is produced by using Beauveria bassiana, which is an entomopathogenic fungus that can kill insects and pests.

Dosage	Packing	Shelf Life
3 Liters / ha	500ml,1 Litre, 5 Litres	One Year

Mode of Action: This entomopathogenic fungus can grow on the body of insects and drain the nutrients from them, and eventually kill the host.

Benefits: Controls borer, root grubs, thrips, aphids, whiteflies, mealy bugs, flies, beetles, rust fungi, jassids and leafhoppers.

Method of Application:

Seed Treatment: Mix 20ml of Myco-B2 with 1 kg of seeds and sow the treated seeds after 30 minutes.

Root Dipping: Mix 20 ml of Myco-B2 with 1 litre of water and dip the roots of seedlings for about 20 minutes before planting.

Field application: For an acre, 1000ml of Myco-B2 can be mixed with sufficient quantity of water and this solution is sprinkled over 50 – 100 kg of farmyard manure and broadcast it in the field. Suspend 1000ml of Myco-B2 in required volume of water and irrigate through drip system.

Content: Beauveria bassiana (2×10^9 cfu / ml)

Caution: Do not mix with chemical fungicides or fertilizers.

Myco-B2 *(Beauveriva bassiana)*

Target Crops and Insects

CROP	COMMON NAME	SCIENTIFIC NAME
Cereals : Wheat, Rice, Teff, Barley, Maize, Corn, Sorghum, Pearl millets	Ballwarm Cutwarm Pink borer Leathoppers	*Helicoverpa sp.* *Spodoptera sp.* *Sesamia inferens* *BPL, GLH, etyc…*
Pulses: Soya bean, Cowpea, Chickpea	Cutwarm	*Spodoptera sp.*
Oil Seeds: Groundnut & Soyabean, sesame, Peanuts, Mustard	Sesame leaf webber Heliothis caterpilars Green vegwtable bug	*Antigastra catalaunalis* *Helicoverpa armigera* *Nezara viridula*
Vegetables: French Bean, Chillies, Tomato, potato, egg Plant, Guards, Lentils, cluster bans, Leek, Okra, Cucumber, Melon, Gherkins and Other Cucurbits, Carrot, Yam, Asparagus, Melon, Broccolis, Spinach	Ballwarm Cutwarm Potato tuber moth Green Peach aphid Leathoppers Tomato leaf miner Spiny ballworm	*Helicoverpa sp.* *Spodoptera sp.* *Phthorimaea operculella* *Myzus persicaeuta absoluta* *Earias sp.* *BPL, GLH, etyc…*
Fiber Crops: Cotton, Sisal,	Ballworm Cutworm	*Helicoverpa sp.* *Spodoptera sp.*
Beverage Crops: tea, Coffee, Coco	Thrips Mealyu bug Scales Mites	*Scitothrips dorsalis* *Planococcus citri,* *Aonidiella aurantii,* *Ascerria sp.*
Ornamental Crops: Carnation, Petunia, Geraniu m, Chrysanthemum, Roses, Aster, Cut flower	Cutworm	*Spodoptera sp.*
Lawns & Galf courses: Grassland, Turf	Cutworm Root Grub	*Spodoptera sp.* *Holotrichna sp.*
Orchards & Fruit Crops: Citrus, Apples, peaches, Mango, Pineapple, Grapes, Melon	Citrus butterfly Mango shoot caterpillars Chafer beetle	*Papilio demolieus L.* *Penicellaria jocosatrix* *Macrodactylus subspinosus F.*

Myco-Vertil

(Verticillium lecanii)

Myco-Vertil
Myco-Vertil is produced by using Verticillium lecanii, which is an entomopathogenic fungus that can control many insects.

Dosage	Packing	Shelf Life
3 Liters / ha	500ml,1 Litre, 5 Litres	One Year

Mode of Action: This entomopathogenic fungus can grow on the body of insects and drain the nutrients from them, and eventually kill the host. Also secretes toxins to kill the host.

Benefits: Controls thrips, aphids, whiteflies, mealy bugs, flies, beetles, rust fungi, jassids and leafhoppers.

Method of Application:

Seed Treatment: Mix 20ml of Myco-Vertil with 1 kg of seeds and sow the treated seeds after 30 minutes.

Root Dipping: Mix 20 ml of Myco-Vertil with 1 litre of water and dip the roots of seedlings for about 20 minutes before planting.

Field application: For an acre, 1000ml of Myco-Vertil can be mixed with sufficient quantity of water and this solution is sprinkled over 50 – 100 kg of farmyard manure and broadcast it in the field. Suspend 1000ml of Myco-Vertil in required volume of water and irrigate through drip system.

Content: Verticillium lecanii (2×10^9 cfu / ml)

Caution: Do not mix with chemical fungicides or fertilizers.

Myco-Vertil *(Verticillium lecanii)*

Target Crops and Insects

CROP	COMMON NAME	SCIENTIFIC NAME
Cereals : Wheat, Rice, Teff, Barley, Maize, Corn, Sorghum, Pearl millets	Whitefly Aphids Thrips Mealy bugs	*Bemissa tabaci* *Aphis sp.* *Scitothrips dorsalis* *Planococcus sp*
Pulses: Soya bean, Cowpea, Chickpea, French beans	Aphids Thrips	*Aphis sp.* *Scitothrips dorsalis*
Oil Seeds: Soyabean, sesame, Peanuts, Mustard, Linseeds, Castor	Aphids Thrips Mealy bugs	*Aphis sp.* *Scitothrips dorsalis* *Planococcus sp*
Vegetables & Cole Crops: Chillies, Tomato, potato, egg Plant, Okra, Melon, Spinach , Onion, Yucca, Cabbage, Cauliflower	Whitefly Aphids Thrips Mealy bugs	*Bemissa tabaci* *Aphis sp.* *Scitothrips dorsalis* *Planococcus sp*
Fiber Crops: Cotton, Jute, Sugarcane, Tobacco	Whitefly Aphids Mealy bugs	*Bemissa tabaci* *Aphis sp.* *Planococcus sp*
Beverage Crops: tea, Coffee, Coco	Thrips Mealyu bug Scales Mites	*Scitothrips dorsalis* *Planococcus citri* *Aonidiella auanrii* *Ascerria Sp.*
Ornamental Crops: Carnation, Roses, Aster, Cut flower, Lilly, Carnation, Poinsettia	Thrips Mealy bugs Scales Mites	*Scitothrips dorsalis* *Planococcus citri* *Aonidiella auanrii* *Ascerria Sp.*
Lawns & Galf courses: Grassland, Turf	Cutworm Root Grub	*Spodoptera sp.* *Holotrichna sp.*
Orchards & Fruit Crops: Citrus, Apples, Date plam, Pineapple, Mango, Grapes, Oranges	Whitefly Aphids Thrips Mealy bugs	*Bemissa tabaci* *Aphis sp.* *Scitothrips dorsalis* *Planococcus sp*
Herbs & Spices: Cardamom, Clove, Basil, Fenugreek	Cardamom Thrips Cardamom whitefly Leafminer	*Sciothrips cardamom* *Dialeurodes cardamom* *Liriomyza sp*