



Farmer FIRST Programme

फार्मर फर्स्ट प्रोग्राम

(Agricultural Extension Division)

(कृषि प्रसार विभाग)

Indian Council of Agricultural Research

भारतीय कृषि अनुसंधान परिषद

PESTS OF COLE CROPS AND THEIR MANAGEMENT

- ❖ Set up light trap @1/ha
- ❖ Pheromone traps (Pherodin SL) @ 12/ha to attract male moths
- ❖ Hand pick grown up larvae and kill them
- ❖ Spray SI NPV @ 1.5×10^{12} POBs/ ha + 2.5 Kg crude sugar + 0.1% teepol
- ❖ Poison bait: Rice bran 5 Kg + molasses or brown sugar 500g + carbaryl 50 WP 500g+ 3lit of water/ha
- ❖ Spray chlorpyrifos 20 EC 2 lit/ha or dichlorovos 76 WSC 1 lit/ha

Cabbage aphid: *Brevicoryne brassicae*

Symptoms of damage: Yellowing, crinkling and cupping, distorted primordial, presence of white cast skin at the base of the plant

Identification of pest: Nymphs and adults are yellowish green with wavy white filament over the body.

Management

- ❖ Install yellow sticky trap @ 15/ha to monitor “macropterous” adults (winged adult).
- ❖ Spray neem oil 3% with 0.5 ml Teepol/lit

Spray any one of the following insecticide

Insecticide	Dose
Azadirachtin 0.03% WSP (300 ppm)	5.0 g/lit.
Dimethoate 30 % EC	6.0 ml/10 lit.
Malathion 50 % EC	1.5 ml/lit.
Phosalone 35 % EC	1.5 ml/lit.
Quinalphos 25 % EC	1.0 ml/lit.

Mustard aphid: *Lipaphis erysimi*

Symptoms of damage: Both nymph and adults suck the sap from leaves, buds and pods. Curling of infested leaves and at advanced stage plants may wither and die. Plants remain stunted and sooty molds grow on the honeydew excreted by the insects.

Identification of pest: Small, soft-bodied, pearl-

shaped insects

Management

- ❖ Set up yellow stick trap to monitor aphid population
- ❖ Conserve the natural enemies viz., *Cocciniella septempunctata*, *Cheilomenes sexmaculata*
- ❖ Spray dimethoate @ 2 ml/lit



Diamond back moth



Stem borer



Leaf webber



Semilooper



Butterfly



Aphid



Mustard aphid



Cut worm damage

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Insect Pests: Diamond back moth, *Plutella xylostella* (Lepidoptera:Plutellidae); cabbage borer, *Hellula undalis* (Lepidoptera:Crambidae); leaf webber, *Crociodolomia binotalis* (Lepidoptera:Crambidae); cabbage green semilooper, *Trichoplusia ni* (Lepidoptera:Noctuoidea); cabbage butterfly, *Pieris brassicae*, *P. rapae* (Lepidoptera:Pieridae); tobacco caterpillar, *Spodoptera litura* (Lepidoptera:Noctuoidea); cabbage aphid, *Brevicoryne brassicae* (Homoptera:Aphididae); mustard aphid, *Lipaphis erysimi* (Homoptera:Aphididae)

Diamond back moth: *Plutella xylostella*

Symptoms of damage: Young caterpillars cause small yellow mines on leaves, scrapping of epidermal leaf tissues producing typical whitish patches on leaves, full-grown larvae bite holes in the leaves and feeds on curd.

Identification of pest: Egg is minute yellow coloured, laid singly or in groups on the upper surface of leaves. Larva is pale yellowish green caterpillar. Pupation takes place on the foliage in a transparent cocoon. Adult is small greyish brown moth. Forewings have three white triangular spots along the inner-margin. Adult folds the wings that appear with triangular markings, opposite wing with diamond shape.

Management

- ❖ Remove and destroy all debris and stubbles after harvest of crop
- ❖ Grow mustard as trap crop at 2:1 ratio (cabbage: mustard) to attract DBM for oviposition at least 10 days ahead of planting of main crop
- ❖ Spray mustard crop with dichlorvos 76 WSC 0.076% to avoid dispersal of the larvae
- ❖ Pheromone traps @12/ha
- ❖ Crop rotation with cucurbits, beans, peas, tomato and melon
- ❖ Larval parasitoid: *Diadegma semiclausm* @1,00,000/ha, *Cotesia plutellae* (plains) at 20000/ha release from 20 days after planting
- ❖ *Bacillus thuringiensis* var. *kurstaki* 2g/lit
- ❖ Neem seed kernel extract 5%

- ❖ Cartap hydrochloride 0.5% at 10, 20 and 30 DAS (nursery) and primordial stage

Spray any one of the following insecticides

Insecticide	Dose
Azadirachtin 5% Neem Extract Concentrate	5.0 ml/10 lit.
Lufenuron 5.4 % EC	1.2 ml/lit.
Spinosad 2.5 % SC	1.2 ml/lit.
Trichlorofon 50 % EC	1.0 ml/lit.

Cabbage borer: *Hellula undalis*

Symptoms of damage: The larva webs the leaves and bore into the stem, stalks or leaf veins

Identification of pest: Egg is yellow shiny, laid on the leaves. Full grown larva is greyish-yellow with seven purplish brown longitudinal stripes. Adult is pale greyish brown moth with wavy grey markings.

Management

- ❖ Collect and destroy mechanically caterpillars in the early stages of attack
- ❖ *Bacillus thuringiensis* @ 2g/lit at primordial stage
- ❖ Cartap hydrochloride @ 500 g/ha or malathion 50 EC @ 500 ml/ha

Leaf webber: *Crociodolomia binotalis*

Spray malathion 50 EC @ 0.1% or carbaryl 0.2%

Cabbage green semilooper: *Trichoplusia ni*

Symptoms of damage: Scrapping of leaves initially and defoliation

Identification of pest: Egg is greenish-white, spherical and sculptured. Eggs are laid singly on ventral surface of leaves. Larva is slender and green in colour with light wavy lines. Adult is stout, brown moth. Head and thorax grey in colour, abdomen white. Forewings are grey wavy in colour with a slender-

marking.

Management

- ❖ Hand pick and destroy the caterpillars
- ❖ Set up light trap @1/ha

Spray insecticides like malathion 50 EC @ 0.1% ha

Cabbage butterfly: *Pieris brassicae*, *P. rapae*

Symptoms of damage: Defoliation, bores into the heads of cabbage

Identification of pest: Larva is velvety bluish green in colour with black dots. Yellow dorsal and lateral stripes covered with white hairs. Pupa is chrysalis which takes place in leaves and stem. Adult is white butterfly.

Management

- ❖ Collect and destroy caterpillars in the early stage of attack
- ❖ Conserve parasitoids like *Cotesia glomeratus*
- ❖ Spray insecticides like quinalphos 25 EC @1000 ml

Tobacco caterpillar: *Spodoptera litura*

Symptoms of damage: Damage leaves and heads of cabbage and cauliflower, damage leaves of radish and beet root

Identification of pest: Egg masses appear golden brown. Young caterpillars are light green with black head or black spots. Well grown caterpillars are grey or dark brown. Adult moths are brownish colour. Forewings are brown colour with wavy white marking. Hindwings are white colour with brown patches along the margin.

Management

- ❖ Plough the soil to expose and kill the pupae
- ❖ Grow castor along border and irrigation channel as trap crop
- ❖ Flood the field to drive out the hibernating larvae