

PEST SITUATION OF GENERAL CROPS, VEGETABLES & ORCHARDS FOR 1ST FORTNIGHT OF SEPTEMBER, 2019

A- GENERAL RECOMMENDATIONS FOR INSECT PEST MANAGEMENT

Motivate the farmers to follow the following recommendations.

- Keep fields free from weeds.
- Remove all plant debris and remains of vegetables immediately after harvest.
- Use suitable fungicides for the control of diseases on crops and vegetables.
- The control of armyworm on different vegetables / fodders is very necessary to check its multiplication by hand picking and graze the infected leaves. For its control suitable insecticides like IGR's should be used in consultation with field staff of Pest Warning and Extension Wing.
- Fallow fields should be ploughed up to destroy pupae of bollworms especially *Helicoverpa* and armyworm.
- For jassid control, apply imidacloprid 25 WP@ 75gm/acre or imidacloprid 200 SL@ 60ml/acre or thiamethoxam 25 WDG@ 24gm/100 LOW.
- Mango orchards with heavy infection of anthracnose should be treated twice with suitable fungicides.
- Orchards should be treated with suitable pesticides thrice a year for the control of insect pests and diseases i.e. before flowering, after fruit setting and harvesting.
- For the control of fruit flies, keep the field neat and clean by eradicating the weeds, picking up of infested fruits and burying them properly and install pheromone (methyl eugenol) traps @ 4-5 traps /acre.

FOR THRIPS

- After harvesting remove & destroy the plant debris in ground
- Use early & quick maturing varieties
- Eradicate the weeds
- Spray spirotetramat+biopower(Movento)240 SC@ 125+125ml/acre
- Spray gamma cyhalothrin (Proaxis) 60 CS@ 100 ml/acre.

FOR JASSID

- Sow resistant varieties
- Spray nitenpyram 50WDG @ 40gm/ acre

FOR LEAFMINER

- Remove & bury the infested leaves
- Spray lufenuron (Match) 50EC 100ml/ 100 liters of water

FOR GALLS & SCALES

- Remove & bury the infested leaves & twigs if minor attack occurs.
- Spray spirotetramate 240Sc (Movento) @125ml/200 liters of water.
- Spray prriproxifen 50% Ec&Biopower @200ml /100 liters of water

FOR FRUIT FLY

- Use methyl eugenol, the sex pheromone
- Use protein hydrolysate for female collection
- Conserve bio control agent *Opius longicaudatus*
- Collect & bury the fallen fruits
- Spread plastic sheet under plant canopy to disrupt its pupation in soil
- Spray Static spinosad ME 53% RB @ 40 gm for 8 plants in an acre (5 gm/ plant).

FOR BORERS

- Sow resistant varieties
- Install light traps for adult moth collection
- Eradicate weeds
- Use Trichogramma cards by biological control
- Conserve and use biological control agents
- Collect infested fruits & bury them in soil
- Spray Emmamectin benzoate 5WDG @ 75gm/ acre.

B- GENERAL RECOMMENDATIONS FOR MANAGEMENT OF DISEASES**FOR ANTHRACNOSE/ WITHER TIP**

- Pruning of diseased branches of the tree
- Apply Bordeaux mixture or copper based fungicides.

FOR CITRUS CANKER

- Select the budwood from disease-free plants.
- Prune & burn the infected shoots
- During active growth season, apply copper based fungicides to all root stocks, grafted plants & other trees

FOR QUICK DECLINE, DIE BACK AND GUMMOSIS DISEASE OF CITRUS AND MANGO

- Make "ring bands" around each plant at a distance of one and half feet to obstruct direct water access to the stem.
- Avoid injuries to plants.
- Apply paste of metalaxyl + mancozeb and lime at 1:8 to the injuries and stem up to 4 feet.
- Apply recommended insecticides on mango and citrus orchards on the appearance of insect pests.
- Apply recommended fungicides on mango and citrus orchards on the appearance of disease symptoms.
- In case of high infection, repeat fungicides application after 15 days interval.
- Control insect pests by applying suitable insecticides in consultation with Field Staff of Pest Warning and Extension Wing.

FOR MEALY BUG MANAGEMENT

- Monitor its population on every host plant and adopt appropriate control measures in consultation with Pest Warning / Extension Wings of Agriculture Department.
- Add mineral oil (diver) with insecticides at recommended ratio for spray on ornamental plants, field crops and vegetables for its effective control.
- Bury infested plants and weeds carefully in soil.
- Store cotton sticks away from water channels.
- Keep field crops, vegetables, ornamental plants, orchards, field bunds and water channels free from weeds.

- Eradicate weeds at their early stage.
- Prune the shrubs and trees infested with mealy bug.
- Spray recommended insecticides at prescribed doses.

ALTERNATE HOST PLANTS OF MEALY BUG

| Crops | Vegetables | Ornamentals | Weeds | Orchards |
|-----------|------------|-------------|------------|----------|
| Sunflower | Okra | China rose | HazarDani | Citrus |
| Tobacco | Brinjal | Huddle | Amarantus | Mulberry |
| Jantar | Tomato | Cotton Rose | Bhakra | Ficus |
| | Chillies | Gul chain | Mako | Ber |
| | Pumpkin | Lantana | Sueda | |
| | | Din Ka Raja | Itsit | |
| | | Rat Ki Rani | Karund | |
| | | Anthorium | Aksan | |
| | | Gul-e-Daudi | Bathu | |
| | | Gainda | Puth Kanda | |
| | | | Kanghi | |

FOR WHITEFLY & CLCV

MANAGEMENT OF WHITEFLY

- Eradicate weeds acting as alternate host plants of whitefly and CLCV and dispose them off carefully.
- Motivate farmers to keep whitefly (vector of CLCV) at the lower ebb on alternate hosts.
- Avoid excessive use of nitrogen in vegetables and other crops.
- Avoid planting of CLCV susceptible ornamental plants.
- Install chrysoperla cards as biological control agent @ 8 cards/ acre. (cards are available at the labs. located in Vehari, Sahiwal&Okara districts)
- Spray IGR pesticides only which are not frequently used in cotton crop.
- Inoculums of CLCV prevail on various host plants throughout the year, therefore to combat the menace adopt following actions:
- Create awareness among the farming community to control this menace on alternate hosts.
- Eradicate weeds and other alternate host plants of CLCV.

Key Points

Keep strict vigilance and scout the field crops, fodders, vegetables and orchards regularly.

ALTERNATE HOST PLANTS OF WHITEFLY

| CROPS | VEGETABLES | ORCHARDS | WEEDS/ ORNAMENTAL | TREES |
|-----------|-------------|----------------|-------------------|---------|
| Sunflower | Okra | Citrus | Gardenia | Shisham |
| Tobacco | Brinjal | Litchi | Mako | Shareen |
| | Cucurbits | Pomegranate | Maina | |
| | Tomato | Ber (Zizyphus) | Karund | |
| | Cabbage | Guava | Lehli | |
| | Cauliflower | Mulberry | | |
| | Peas | Papaya | | |
| | Potato | | | |
| | Onion | | | |
| | Spinach | | | |

ALTERNATE HOST PLANTS OF CLCV

| CROPS | VEGETABLES | ORNAMENTAL | WEEDS |
|-----------|------------|-------------|----------------|
| Sunflower | Okra | Ornamentals | Leh |
| Tobacco | Brinjal | Gurhal | Lehli |
| | Chillies | Chambeli | Mako |
| | Tomato | | Maina |
| | Potato | | Karund / Bathu |
| | Cucumber | | Gardenia |
| | | | Hazardani |
| | | | Rattan jot |
| | | | Sun Kukra |

C- ETLs OF DIFFERENT INSECT PESTS & DISEASES

| Name of Crop | Insect Pest/ Disease | ETL | Name of Crop | Insect Pest/ Disease | ETL |
|--------------|----------------------|----------------------------------------------------------------|--------------|----------------------|-------------------------------------------------------------------------|
| Maize | Shoot fly | 5% | Mango | Hopper | 5/ Leaf (In Summer) 1/ Leaf (In Winter) 10/ Inflorescence or Twig |
| | Stem borer | 5% | | Scales | 50 Scales / Leaf |
| | Helicoverpa | 5 % Cobs | | Fruit fly | 10% damage |
| | Armyworm | On Appearance | | Mealybug | On Appearance |
| Potato | Jassid | 3/Leaf | | Mango Midges | 10 spots/ twig or inflorescence |
| | Blight | On Appearance | | Gall Farming Insect | 10 galls / Leaf |
| Tobacco | Cutworm | 3% Attacked Plants | | Malformation | Low-Med-High |
| Sunflower | Helicoverpa | 1/5 Flowers | | Anthraxnose | On Appearance |
| Vegetables | Red Pumpkin Beetle | 1/ 10 Plants (at seedling stage) 1/ Plants (at crop stage) | Citrus | Citrus Psylla | 6/ Leaf |
| | Hudda Beetle | 4/ Plant | | Leaf-miner | 10% affected leaves |
| | Fruit Borer | 10%on Brinjal 5% on Tomato | | Fruit fly | 10% affected fruits |
| | Diamond Back Moth | 3/ Leaf | | Withertip | Low-Med-High |
| | Helicoverpa | 5% fruit infestation | | Canker | Low-Med-High |
| | Fruit fly | 3 % fruit infestation | Guava | Fruit fly | 10% affected fruits (4-5 Pheromone traps/acre) |
| | Leaf-miner | 10 % leaves infested | | | |
| | Jassid | 1/Leaf on Cucurbits 2/ Leaf on Brinjal 3/ Leaf on Melons | | | |
| | Whitefly | 5/Leaf on Cucurbits 2/Leaf on Chillies, Cowpeas | | | |
| | Aphid | 5/Leaf | | | |
| | Powdery Mildew | Low-Med-High | | | |
| | Downy Mildew | Low-Med-High | | | |
| | Wilt | Only seed treatment | | | |
| | Root Rot | Only seed treatment | | | |
| | Collar Rot | Water must not touch the stem | | | |
| | Leaf Spot/ Blight | Spray on appearance | | | |