

PEST SITUATION OF GENERAL CROPS, VEGETABLES & ORCHARDS FOR 1ST FORTNIGHT OF NOVEMBER, 2018

<u>OUTLINE</u>	
1.	Pest situation of general crops
2.	Pest situation of vegetables
3.	Pest situation of orchards
4.	Pest Forecast for next fortnight
5.	Recommendations
6.	Economic Threshold Levels (ETLs)

1- PEST SITUATION OF GENERAL CROPS

BAJRA

Borer: The infestation below has been observed in District Layyah.

BARSEEM

Armyworm: The infestation has been observed in District Multan and T.T.Singh.

Whitefly: The infestation below has been observed in District Lodhran, Bahawalpur, Bahawalnagar, R.Y.Khan and Rajanpur

Aphid: Its infestation has been observed below ETL in District Khushab.

MAIZE

Whitefly: The infestation below has been observed in District Bahawalnagar.

Hopper: The infestation below has been observed in District Lodhran and Bahawalnagar

Stem Borer: The infestation above ETL has been observed in district Bhakkar and Multan and infestation below ETL has been observed in District Bahawalpur, Mianwali, Khushab, Chakwal, Sheikhupura, Attock, Khanewal, Vehari, R.Y.Khan, Muzaffargarh, Rajanpur and Bhakkar.

Jassid: The infestation below has been observed in District Muzaffargarh.

Heliothis: Its infestation has been observed below ETL in District Bhakkar.

Toka: Its infestation has been observed below ETL in District Ferozwala.

LUCERN

Whitefly: The infestation below has been observed in District Lodhran and Bahawalpur

Armyworm: The infestation has been observed in District Bahawalnagar.

SARSOON (RAYA)

Whitefly: The infestation below has been observed in District Bahawalpur, Bahawalnagar and R.Y.Khan

RICE

Rice Borer: The infestation below ETL has been observed in District Multan

Shoot Borer: The infestation below ETL has been observed in District Multan.

Leaf folder: The infestation below ETL has been observed in District Multan.

SORGHUM

Borer: The infestation below ETL has been observed in District Multan, Okara, Bahawalpur and Sialkot

Jassid: The infestation below has been observed in District D.G. Khan

Aphid: Its infestation has been observed below ETL in District Ferozwala.

Toka: Its infestation has been observed below ETL in District Ferozwala and Chakwal.

Fruit fly: Its infestation has been observed below ETL in District Jhang.

Downy mildew: Its incidence has been observed in District Gujrat and Attock.

SUGARCANE

Pyrrilla: Its infestation has been observed below ETL in District Gujrat.

Borer: Its infestation has been observed below ETL in District Jhelum.

Red rot: Its incidence has been observed in District Chakwal and Attock.

White fly: Its infestation has been observed below ETL in District Sialkot, Gujrat and Hafizabad & infestation has been observed above ETL in District Hafizabad.

MILLET

Grain mold: Its incidence has been observed in District Bhakkar.

OLIVE

Anthracnose: Its incidence has been observed in District Rawalpindi.

GUARA

Black spot: Its incidence has been observed in District Khushab.

BRASSICA

Aphid: Its infestation has been observed below ETL in District Khushab.

CANAOLA

Aphid: Its infestation has been observed below ETL in District Khushab.

2- PEST SITUATION OF VEGETABLES

BITTER GOURD

Whitefly: The infestation below ETL has been observed in District Lodhran and Pakpattan.

Fruit fly: The infestation below ETL has been observed in District Lodhran, Pakpattan, Faisalabad and Attock.

Downy mildew: Its incidence has been observed in District Sheikhpura.

BRINJAL

Fruit Borer: The infestation above ETL has been observed in District Multan & below ETL has been observed in District Multan, Vehari, Lodhran, Bahawalpur, Muzaffargarh, Layyah, Kasur, Chakwal, Attock and Faisalabad.

Fruit fly: The infestation below ETL has been observed in District R.Y.Khan

Jassid: The infestation above ETL has been observed in District Lodhran, Bahawalpur and Jhang & below ETL has been observed in District Multan, Lodhran, Bahawalpur, Bahawalnagar, R.Y.Khan, D.G. Khan, Rajanpur and Jhang

Whitefly: The infestation above ETL has been observed in District Bahawalpur & below ETL has been observed in District Lodhran, Bahawalpur, R.Y.Khan, D.G. Khan, Muzaffargarh, Rajanpur, Layyah and Ferozwala

Aphid: Its infestation has been observed below ETL in District Khushab.

Fruit rot: Its incidence has been observed in District CHakwal.

CABBAGE

Whitefly: The infestation below ETL has been observed in District Bahawalpur, Muzaffargarh and Rajanpur.

Armyworm: The infestation has been observed in District Multan and Bahawalpur.

Jassid: The infestation below ETL has been observed in District Muzaffargarh.

Caterpillar: Its infestation below ETL has been observed in District Sheikhpura.

CARROT

Whitefly: The infestation below ETL has been observed in District Bahawalnagar, R.Y.Khan and Rajanpur

Jassid: The infestation below ETL has been observed in District Sahiwal.

CHILLIES

Whitefly: The infestation below ETL has been observed in District Multan, Bahawalpur, Muzaffargarh and Rajanpur.

Jassid: The infestation below ETL has been observed in District R.Y.Khan

Collar Rot: The incidence has been observed in District Multan.

Virus: The incidence has been observed in District Bahawalpur, R.Y.Khan and Jhang

Root rot: Its incidence has been observed in District Attock.

Damping off: Its incidence has been observed in District Sheikhpura.

CAULIFLOWER

Whitefly: The infestation below ETL has been observed in District Multan, Lodhran, Pakpattan, Bahawalpur, R.Y.Khan, D.G. Khan, Muzaffargarh and Rajanpur

Armyworm: The infestation has been observed in District Multan, Vehari, Lodhran, Bahawalpur, R.Y.Khan, Lahore, Faisalabad, Chiniot, Bhakkar and Chakwal.

Jassid: The infestation below ETL has been observed in District Bahawalnagar, R.Y.Khan and D.G. Khan.

Aphid: Its infestation below ETL has been observed in District Khushab.

Bacterial spots: Its incidence has been observed in District Chakwal.

Borer: Its infestation below ETL has been observed in District Mianwali.

Caterpillar: Its infestation below ETL has been observed in District Sheikhpura.

Root rot: Its incidence has been observed in District Chakwal.

CORRIANDER

Whitefly: The infestation below ETL has been observed in District Rajanpur

CUCUMBER

Whitefly: The infestation below ETL has been observed in District Lodhran and Muzaffargarh.

Downey Mildew: The incidence has been observed in District Lodhran and Gujrat

Blight: The incidence has been observed in District Muzaffargarh.

Fruit Fly: Its infestation below ETL has been observed in District Sheikhpura and T.T.Singh.

FENUGREEK

Wilt: Its incidence has been observed in District Lahore.

FRASS BEAN

Toka: Its infestation below ETL has been observed in District Sheikhpura

GARLIC

Snail: Its infestation below ETL has been observed in District Chakwal.

LEMON

Leaf miner: Its infestation below ETL has been observed in District Chakwal

MUSTARD

Whitefly: The infestation below ETL has been observed in District Bahawalpur

Armyworm: The infestation has been observed in District Bahawalnagar.

OKRA

Whitefly: The infestation below ETL has been observed in District R.Y.Khan.

Jassid: The infestation a above ETL has been observed in District Jhang & infestation a below ETL has been observed in District Bahawalnagar, R.Y.Khan and T.T.Singh.

Fruit borer: Its infestation has been observed below ETL in District T.T. Singh.

ONION

Thrips: The infestation below ETL has been observed in District Multan, Lodhran and Rajanpur.

Downey Mildew: The incidence has been observed in District Lodhran

Aphid: Its infestation below ETL has been observed in District Chakwal.

PEAS

Whitefly: The infestation below ETL has been observed in District Pakpattan.

Jassid: The infestation below ETL has been observed in District Pakpattan

Army worm: Its infestation above ETL has been observed in District Sialkot.

Pod borer: Its infestation below ETL has been observed in District Chakwal.

Aphid: Its infestation below ETL has been observed in District Jhelum.

Root rot: Its incidence has been observed in District Sheikhpura.

POTATO

Whitefly: The infestation a below ETL has been observed in District Sahiwal, Pakpattan, Bahawalpur, Layyah, Kasur and T.T.Singh.

Jassid: The infestation above ETL has been observed in District Khanewal & infestation below ETL has been observed in District Vehari, Sahiwal, Pakpattan, Layyah, Ferozwala, T.T.Singh, Faisalabad, Chiniot and M.B.Din..

CLCuV: The incidence has been observed in District Layyah

Army worm: Its infestation above ETL has been observed in District Chakwal.

Cutworm: Its infestation below ETL has been observed in District Sialkot.

Early blight: Its incidence has been observed in District Kasur.

Toka: Its infestation below ETL has been observed in District Jhelum.

PUMPKIN

Whitefly: The infestation has been observed above ETL in District Sheikhpura & infestation below ETL has been observed in District Multan, Bahawalpur, R.Y.Khan, D.G. Khan and Muzaffargarh.

Downey Mildew: The incidence has been observed in District R.Y.Khan, Muzaffargarh, Kasur and Gujrat.

Jassid: The infestation below ETL has been observed in District D.G.Khan

Red pumpkin beetle: Its infestation below ETL has been observed in District Kasur and Attock.

RADISH

Whitefly: The infestation below ETL has been observed in District Multan, Bahawalpur, Bahawalnagar and R.Y.Khan

Aphid: Its infestation below ETL has been observed in District Khushab.

SPINACH

Whitefly: The infestation below ETL has been observed in District Multan, Lodhran, Bahawalpur, Bahawalnagar, R.Y.Khan and Muzaffargarh.

Jassid: The infestation below ETL has been observed in District Vehari

Armyworm: The infestation has been observed in District Multan, Vehari, Lodhran, Bahawalpur, R.Y.Khan and Nankana

Leaf spot: Its incidence has been observed in District Chakwal.

SPONGUE GOURD

Whitefly: The infestation below ETL has been observed in District Lodhran and Muzaffargarh.

Jassid: The infestation below ETL has been observed in District Bahawalpur and Muzaffargarh.

Fruit Fly: The infestation below ETL has been observed in District Lodhran.

Beetles: The infestation below ETL has been observed in District Lodhran

TINDA

Whitefly: The infestation below ETL has been observed in District Lodhran.

TOMATO

Whitefly: The infestation below ETL has been observed in District Muzaffargarh

Jassid: The infestation below ETL has been observed in District Muzaffargarh

Blight: The incidence has been observed in District Muzaffargarh

ABW: Its infestation has been observed below and above ETL in District Attock.

Leaf spot: Its incidence has been observed in District Rawalpindi.

Aphid: Its infestation below ETL has been observed in District Khushab.

Fruit borer: Its infestation below ETL has been observed in District Faisalabad.

ROUND GOURD

Downy mildew: Its incidence has been observed in District Gujrat and Attock.

TORI

Whitefly: The infestation below ETL has been observed in District Multan and D.G. Khan.

Jassid: The infestation below ETL has been observed in District D.G. Khan.

TURNIP

Whitefly: The infestation below ETL has been observed in District Multan, Sahiwal and Muzaffargarh

TURMERIC

Leaf blotch: Its incidence has been observed in District Kasur.

3- PEST SITUATION OF ORCHARDS

APPLE

Scab: Its incidence has been observed in District Rawalpindi.

APRICOT

Gummosis: Its incidence has been observed in District Attock.

CITRUS

Leaf miner: The infestation above ETL has been observed in District Attock & infestation below ETL has been observed in District Multan, Khanewal, Vehari, Lodhran, Sahiwal, Bahawalpur, Bahawalnagar, R.Y.Khan, Layyah, Sheikhupura, Faisalabad, Jhang, T.T.Singh, Attock, Chakwal, Khushab, Bhakkar, M.B.Din, Sargodha and Mianwali

Citrus Psylla: The infestation below ETL has been observed in District Vehari, Sahiwal, Bahawalpur, R.Y.Khan, Lahore and Sargodha.

Slow Decline: The incidence has been observed in District Multan, Lodhran, Bahawalpur, R.Y.Khan and Bhakkar.

Fruit Fly: The infestation below ETL has been observed in District Bahawalpur, Bahawalnagar, R.Y.Khan, Layyah, T.T.Singh and Jhang, Sargodha, Mianwali and Bhakkar.

Gummosis: The incidence has been observed in District Multan, R.Y. Khan, Bhakkar and Sargodha

Wither tip: The incidence has been observed in District Multan, Khanewal, Vehari, Lodhran, Sahiwal, Pakpattan, Okara, Bahawalpur, Bahawalnagar, R.Y.Khan, Layyah, Lahore, T.T.Singh, Jhelum, Rawalpindi, Sargodha, Mianwali, Khushab, Bhakkar, Jhang, and Faisalabad.

Citrus Canker The incidence has been observed in District Multan, Bahawalpur, Bahawalnagar, R.Y.Khan, Layyah, T.T.Singh, Jhang, Khushab, Sargodha, Mianwali, Bhakkar and Chakwal.

Malanoses: Its incidence has been observed in District Sargodha and Bhakkar.

Red Scale: Its infestation below ETL has been observed in District Sargodha.

Scab: Its incidence has been observed in District Sargodha.

Stem end rot: Its infestation below ETL has been observed in District Sargodha.

MANGO

Anthraco nose: The incidence has been observed in District Multan, Khanewal, Vehari, Lodhran, Sahiwal, Pakpattan, Okara, Bahawalpur, Bahawalnagar, R.Y.Khan, D.G Khan, Muzaffar Garh, Rajanpur, Lahore, Chiniot and Jhang.

Scales: The infestation below ETL has been observed in District Multan, Vehari, Bahawalpur, R.Y.Khan and Muzaffargarh.

Galls: The infestation below ETL has been observed in District Multan, Vehari, Lodhran, Pakpattan, Bahawalpur, Bahawalnagar, R.Y.Khan, Muzaffargarh and Jhang

Malformation: The incidence in dry form has been observed in District Pakpattan and Bahawalpur.

Hopper: The infestation below ETL has been observed in District Bahawalpur and Muzaffargarh

Quick Decline: This is syndrome in which whole plant of mango dies off suddenly. Its incidence has been observed in District Multan, Lodhran, Bahawalpur, Bahawalnagar and R.Y.Khan.

Gummosis: The incidence has been observed in District Multan, R.Y.Khan and Muzaffargarh.

GUAVA

Fruit fly: The infestation above ETL has been observed in District Jhang & infestation below ETL has been observed in District Pakpattan, Kasur, Sheikhupura, Faisalabad, Chakwal and Jhang.

Anthracoise: The incidence has been observed in District Sahiwal, Sheikhupura and Faisalabad

Decline: Its incidence has been observed in District Lahore.

Wilt: Its incidence has been observed in District Sheikhupura.

Wither tip: Its incidence has been observed in District Ferozwala and Kasur.

Mealy bug: Its infestation below ETL has been observed in District Lahore.

Termite: Its infestation below ETL has been observed in District Faisalabad.

PEACH

Leaf curl virus: Its incidence has been observed in District Rawalpindi.

Gummosis: Its incidence has been observed in District Chakwal.

Wilt: Its incidence has been observed in District Chakwal.

Fruit Fly: Its infestation below ETL has been observed in District Attock.

GRAP FRUIT

Canker: Its incidence has been observed in District Chakwal.

Leaf spots: Its incidence has been observed in District Attock.

GRAPES

Downy Mildew: The incidence has been observed in District R.Y.Khan.

LOQUAT

Leaf spots: Its incidence has been observed in District Chakwal.

Fruit Fly: Its infestation below ETL has been observed in District Attock.

Anthracoise: Its incidence has been observed in District Rawalpindi.

POMEGRANATE

Cracking: Its incidence has been observed in District Rawalpindi.

STRAWBERRY

Root rot: Its incidence has been observed in District Sheikhupura.

4. PEST FORECAST FOR NEXT FORTNIGHT

Forecast of insect pests and diseases is given as under;

VEGETABLES FORECAST

WHITEFLY

It is foretold that its population may decrease on vegetables and crops during the next fortnight.

JASSID

Its population decrease during the coming fortnight due to current weather conditions.

THRIPS

Its population may decrease in the coming fortnight due to current weather conditions.

MITES

Its population may decrease in the coming fortnight due to current weather conditions.

FRUIT FLY

It is foretold that its population may increase on vegetables and crops during the next fortnight

RED PUMPKIN BEETLE

It is foretold that its population may increase on vegetables and crops during the next fortnight

BORER

Its population may sustain on Vegetable during next fortnight.

RED PUMPKIN BEETLE

Its population may increase on Vegetable during next fortnight

ARMYWORM

Its population may decrease owing to prevailing weather conditions during the coming fortnight.

BLIGHT

Its incidence may increase owing to prevailing weather conditions which may continue during the coming fortnight

DOWNY MILDEW

Its incidence may increase owing to prevailing weather conditions which may continue during the coming fortnight

COLLOR ROT

Its incidence may sustain owing to prevailing weather conditions which may continue during the coming fortnight

VIRUS

Its incidence may sustain owing to prevailing weather conditions which may continue during the coming fortnight

WILT

Its incidence may sustain owing to prevailing weather conditions which may continue during the coming fortnight

GENERAL CROPS FORECAST

BORER

Its population may decrease owing to prevailing weather conditions which may continue during the coming fortnight

WHITEFLY

Its population may decrease owing to prevailing weather conditions which may continue during the coming fortnight

ARMYWORM

Its population may decrease owing to prevailing weather conditions which may continue during the coming fortnight

SHOOT FLY

Its population may decrease owing to prevailing weather conditions which may continue during the coming fortnight

STEM BORER

Its population may sustain owing to prevailing weather conditions which may continue during the coming fortnight

LEAF FOLDER

Its population may decrease owing to prevailing weather conditions which may continue during the coming fortnight

BLIGHT

Its incidence may increase due to prevailing climatic conditions in the coming fortnight

MANGO ORCHARD FORECAST

GALLS & SCALES

Their population may sustain due to prevailing climatic conditions in the coming fortnight.

THRIPS

Their population may decrease due to prevailing climatic conditions in the coming fortnight.

HOPPER

Their population may decrease due to prevailing climatic conditions in the coming fortnight.

FRUIT FLY

Their population may decrease due to harvesting and prevailing climatic conditions in the coming fortnight.

QUICK DECLINE

Its incidence may sustain due to current climatic conditions.

ANTHRACNOSE

Its incidence may sustain due to prevailing climatic conditions in the coming fortnight.

GUMMOSIS

Its incidence may sustain due to prevailing climatic conditions in the coming fortnight.

CITRUS ORCHARD FORECAST

CITRUS PSYLLA

Its infestation may decrease due to prevailing climatic conditions in the coming fortnight

LEAFMINER

Its infestation may decrease due to prevailing climatic conditions in the coming fortnight.

WITHERTIP

Its incidence may increase due to prevailing climatic conditions in the coming fortnight.

CITRUS CANKER

Its incidence may increase due to current climatic conditions during the next fortnight.

LEAF FALL

Its incidence may increase due to current climatic conditions during the next fortnight.

SLOW DECLINE

Its incidence may sustain due to current climatic conditions during the next fortnight.

GUMMOSIS

Its incidence may sustain due to current climatic conditions during the next fortnight.

GUAVA

ANTHRACNOSE

Its incidence may sustain due to current climatic conditions during the next fortnight.

FRUITFLY

Their population may increase on Guava due to prevailing climatic conditions in the coming fortnight.

5. RECOMMENDATIONS

GENERAL RECOMMENDATIONS

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 heliothis 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 @ 3-5 traps /acre.

FOR ONION 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 BORERS

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

FOR LEAFMINER

- Remove & bury the infested leaves

- Spray bifenthrin 10% EC @ 250-320ml/100 liters of water
- Spray lufenuron (Match) 50EC 100ml/ 100 liters of water

FOR JASSID

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

FOR GALLS & SCALES

- Remove & bury the infested leaves & twigs if minor attack occurs.
- Spray bifenthrin 10% EC @ 250-320ml/100 liters of water
- 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 *Opiuslongicaudatus*
- 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 ANTHRACNOSE

- Pruning of diseased branches of the tree
- Apply recommended fungicides with consultation of local Agriculture Department.

FOR WITHERTIP

- Prune & bury the dry twigs & branches
- Use Bordeaux mixture
- Apply 1 Kg ammonium sulphate with 10Kg well rotten farm-yard manure per tree

FOR CITRUS CANKER

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

- Use streptomycin sulphate 72SP @ 100gm/Acre.

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

- Make "DAUR" 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	Mulbery
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)
- For whitefly control, apply any of the following pesticides on spring crops, vegetables and ornamental plants.
- 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	Mulbery		
	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

6- 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			