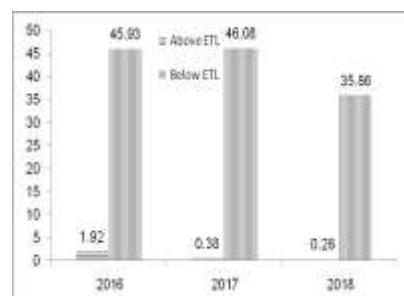


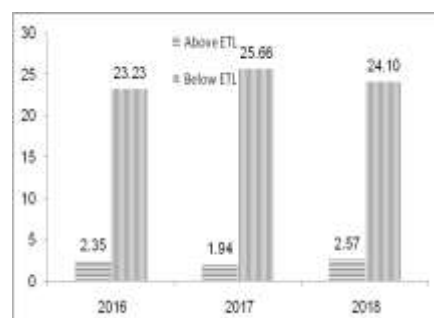
## PEST SITUATION ON COTTON CROP IN PUNJAB DURING 1<sup>ST</sup> WEEK OF JUNE, 2018

**Whitefly:** On overall Punjab basis 0.26% spots above ETL have been observed during current week as compared to 0.15% % in last week and 0.38% during the same corresponding period of last year & 35.86% spots below ETL have been observed during current week as compared to 25.88% in last week and 46.08% during the same corresponding period of last year. The increase in its population above ETL as compared to same corresponding period of last year is due to ban on early sown of cotton by implementing Sec. 144 and effective measures taken by farmers for seed treatment.



Sr.	TEHSIL	%AGE	AREA	Sr.	TEHSIL	%AGE	AREA
1	PAK PATTAN	4.2	15	4	KOT ADDU	2.5	4
2	OKARA	3.4	2	5	SAHIWAL	1.5	2
3	LODHRAN	3.2	4	6	T.T.SINGH	1.0	2

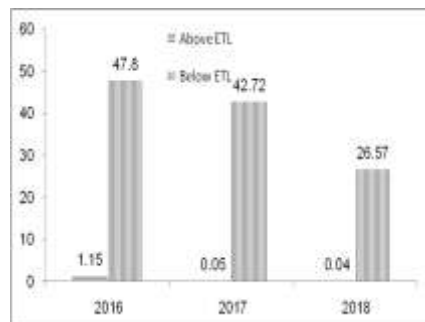
**Jassid:** On overall Punjab basis 2.57% ABETL has been observed as compared to 0.83% in last week and same week of last year 1.94% & BETL 24.10% spots have been observed during current week as compared to 16.08% in last week and 25.66% during the same corresponding period of last year.



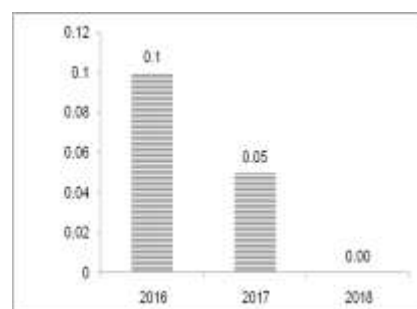
Sr.	TEHSIL	%AGE	AREA	Sr.	TEHSIL	%AGE	AREA
1	PAK PATTAN	29.2	74	12	VEHARI	4.0	6
2	DEPALPUR	15.0	17	13	T.T.SINGH	3.8	6
3	SAHIWAL	14.7	38	14	OKARA	3.4	1
4	MULTAN	14.0	30	15	LODHRAN	3.2	8
5	CHICHA WATNI	13.2	34	16	CHISHTIAN	2.5	4
6	ARIF WALA	13.0	19	17	ALI PUR	2.5	3
7	MIAN CHANNU	10.0	29	18	SHUJABAD	2.3	3
8	MUZUFAR GARH	10.0	7	19	MAILSI	2.3	3
9	HASILPUR	4.9	3	20	A.P.EAST	2.2	10
10	JATOI	4.8	15	21	JAHANIAN	2.0	6
11	KABIR WALA	4.3	9				

**Thrips:** On overall Punjab basis 0.04 AETL has been observed as compared to 0.05% in last week and same week of last year i.e. 0.05% & BETL 26.57% spots have been observed during current week as compared to 20.66% in last week and 42.72% during the same corresponding period of last year.

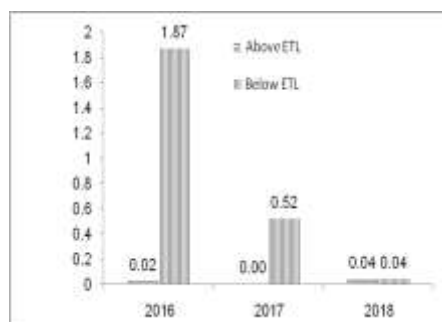
Sr.	TEHSIL	%AGE
1	CHISHTIAN	2.5



**Mealy Bug:** On overall Punjab basis 0.00% spots of Mealy Bug have been observed as compared to 0.05% in last week and 0.05% spots during the same corresponding period of the last year.



**Mites:** On overall Punjab basis 0.04% spots above ETL have been observed during current week as compared to 0.00% in last week and 0.00% during the same corresponding period of last year & 0.04% spots below ETL have been observed during current week as compared to 0.05% in last week and 0.52% during the same corresponding period of last year. The decrease in its population is due to ban on early sown cotton by implementing Sec. 144 and effective measures taken by farmers for seed treatment.

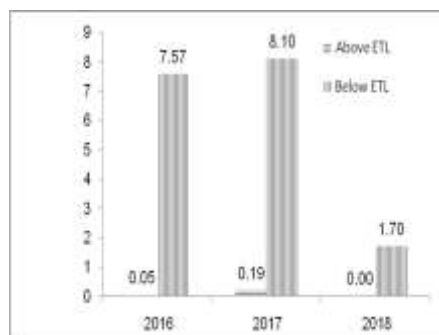


Sr.	TEHSIL	%AGE	AREA EFFECTED
1	MIAN CHANNU	2.0	2

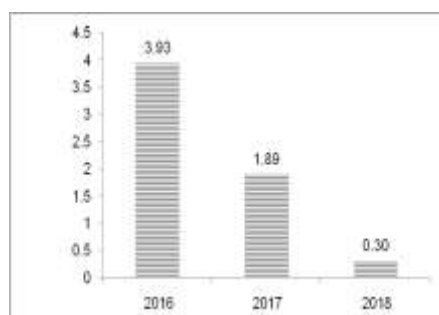
**Aphid:** On overall Punjab basis 0.00% spots below ETL have been observed during current week as compared to 0.00% in last week and 0.00% during the same corresponding period of last year. As this pest flourish best on the early cotton in comparatively cooler months of March and April so the decrease in its population is

due to ban on early sown cotton by implementing Sec. 144 and effective measures taken by farmers for seed treatment.

**Dusky Cotton Bug:** On overall Punjab basis 0.00% spots above ETL have been observed during current week as compared to 0.00% in last week and 0.19% during the same corresponding period of last year & 1.7% spots below ETL have been observed during current week as compared to 1.2% in last week and 8.1% during the same corresponding period of last year. The decrease in its population as compared to the same corresponding period of last year is due to ban on early sown cotton by implementing Sec. 144 and effective measures taken by farmers for seed treatment.



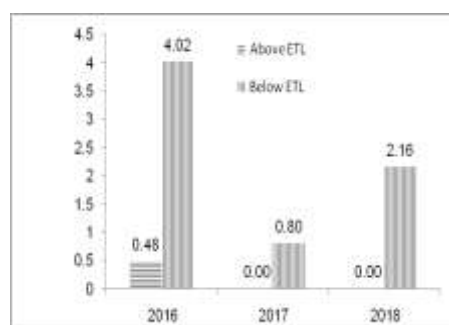
**Armyworm:** On overall Punjab basis 0.30% spots of Armyworm have been observed as compared to 0.10% in last week and 1.89% spots during the same corresponding period of the last year. The decrease in its population as compared to the same corresponding period of last year is due to ban on early sown cotton by implementing Sec. 144 and effective measures taken by farmers.



**Its infestation above ETL has been witnessed Tehsil wise as under:-**

Sr.	TEHSIL	%AGE	AREA EFFECTED	Sr.	TEHSIL	%AGE	AREA EFFECTED
1	SARGODHA	20.0	2	5	CHICHA WATNI	1.5	5
2	JHANG	3.4	10	6	SUMUNDRI	1.4	3
3	SAHIWAL	2.9	14	7	T.T.SINGH	1.0	1
4	HASILPUR	2.4	10				

**Pink Boll Worm:** On overall Punjab basis 0.00% spots of PBW Above ETL have been observed as compared to 0.00% in last week and 0.00% same corresponding period of the last year & 2.16% spots of PBW below ETL have been observed as compared to 2.24% in last week and 0.80% during same corresponding period of last

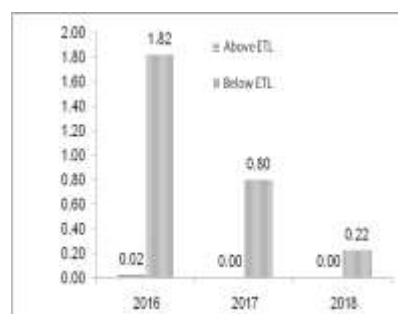


year. The decrease in its population above ETL is mainly due to sowing of Bt cultivars, ban on early sown of cotton by implementing Sec. 144 and effective measures taken by farmers for off season management of PBW by turning heaps of cotton sticks, collection & disposal of PBW effected bolls, disposal of cotton ginning wastes in ginning factories, oil mills, brick/ kilns etc.

**Its infestation below ETL has been witnessed Tehsil wise as under**

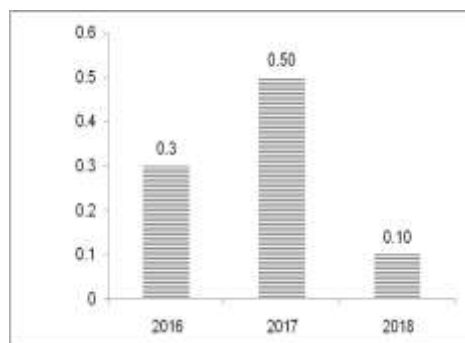
Sr.	TEHSIL	%AGE	AREA EFFECTED	Sr.	TEHSIL	%AGE	AREA EFFECTED
1	GOJRA	15.0		10	BAHAWAL PUR	5.4	
2	HASILPUR	14.6		11	MUZUFAR GARH	5.0	
3	KAMALIA	12.8		12	MIAN CHANNU	4.0	
4	T.T.SINGH	10.6		13	VEHARI	4.0	
5	MAILSI	9.1		14	CHICHA WATNI	2.9	
6	SHORKOT	7.7		15	KOT ADDU	2.5	
7	OKARA	6.9		16	YAZMAN	2	
8	JHANG	6.9		17	SAHIWAL	1.5	
9	BURE WALA	6.0		18			

**American Bollworm:** On overall Punjab basis 0.00% spots of ABW above ETL have been observed as compared to 0.00% in last week and 0.00% during same corresponding period of last year & 0.22% spots of ABW below ETL have been observed as compared to 0.05% in last week and 0.80% during same corresponding period of last year. The decrease in its population as compared to same period of last year is mainly due to sowing of Bt cultivars and due to ban on early sown of cotton by implementing Sec. 144.



**Spotted Bollworm:** On overall Punjab basis 0.00% spots of SBW above ETL have been observed as compared to 0.00% in last week and 0.00% during same corresponding period of last year & 0.00% spots of SBW below ETL have been observed as compared to 0.00% in last week and 0.00% during same corresponding period of last year. The decrease in its population below ETL as compared to same period of last year is mainly due to sowing of Bt cultivars and ban on early sown of cotton by implementing Sec. 144.

**CLCUV:** On overall Punjab basis 0.1% spots of CLCV have been observed as compared to 0.1% in last week and 0.5% during the same corresponding period of the last year. The increase in its incidence as compared to last week & same week of last year is due to favorable condition.



**Its infestation above ETL has been witnessed Tehsil wise as under:**

Sr.	TEHSIL	%AGE	AREA EFFECTED
1	T.T.SINGH	1.9	2

## FORECAST FOR THE NEXT WEEK

## METEOROLOGICAL DATA OF THE CURRENT WEEK 2018-2017

Districts	2018				2017			
	Temperature		R.H%	Rainfall (mm)	Temperature		RH%	Rainfall (mm)
	Max.	Min.			Max.	Min.		
Multan	38.00	29.13	54.63	0.00	40.25	30.38	60.25	0.00
Khanewal	44.24	32.44	36.14	0.00	42.71	28.96	29.29	0.00
Vehari	46.75	32.06	43.38	0.00	42.00	28.25	44.00	0.00
Lodhran	44.14	29.86	31.14	0.00	41.86	28.86	35.07	0.00
Sahiwal	44.06	27.20	37.40	0.00	41.50	26.50	40.30	2.00
Pakpattan	46.75	29.38	20.00	0.00	44.25	28.50	23.25	0.00
Okara	44.50	27.50	59.00	0.00	42.50	27.20	66.00	0.00
Bahawalpur	44.00	27.20	34.25	0.00	42.56	27.18	44.00	1.00
Bahawalnagar	46.60	28.60	19.40	7.00	43.55	28.60	17.65	7.00
R.Y.Khan	48.00	28.62	0.00	0.00	43.89	29.64	46.75	0.00
D.G.Khan	47.14	32.43	49.79	0.00	43.86	29.57	43.14	0.00
M.Garh	45.10	30.30	22.90	0.00	43.41	28.88	33.35	0.00
Rajanpur	45.72	29.25	56.70	0.00	41.60	29.65	36.62	0.00
Layyah	47.40	31.25	54.40	0.00	40.20	24.20	36.60	0.00
<b>AVERAGE</b>	<b>45.17</b>	<b>29.66</b>	<b>37.08</b>	<b>7.00</b>	<b>42.44</b>	<b>28.31</b>	<b>39.73</b>	<b>10.00</b>

**WEATHER FORECAST FOR NEXT 7 DAY IN COTTON ZONE**

Division	Dated	6/6	7/6	8/6	9/6	10/6	11/6	12/6
Multan	Max.Temp.	46	48	48	45	42	46	44
	Min.Temp.	34	35	34	33	32	31	35
	Humidity %	19	15	16	22	30	25	4
Sahiwal	Max.Temp.	44	47	47	44	43	46	42
	Min.Temp.	34	34	34	34	33	30	34
	Humidity %	23	18	16	21	22	25	9
Bahawal pur	Max.Temp.	46	47	46	44	42	45	45
	Min.Temp.	34	34	32	32	29	30	31
	Humidity %	19	19	21	28	31	28	5
D.G. Khan	Max.Temp.	46	48	47	46	43	47	45
	Min.Temp.	35	35	34	34	33	33	36
	Humidity %	18	13	16	18	27	19	2
Average Cotton Region	Max.Temp.	45.32						
	Min.Temp.	33.18						
	Humidity %	18.89						

There is forecast of mostly sunny weather for seven days in cotton zone during next week. So, it is forecasted that increased temperature for next week in cotton zone (Southern Punjab) may provide the conducive environment for proliferation of some insect pests on cotton crop.

**Forecast of Sucking Pests:**

**Whitefly:** This pest flourish best in hot dry climate with optimum temperature 35-50 °C with relative humidity below 50%. Maximum lethal temperature for this pest is 45-51 °C. The current weather conditions on overall Punjab basis (temp. Max. 45.17 °C, Min. 29.66 °C with R. humidity 37.08%) & forecast for the next week temp. Max. 45.32 °C, Min. 33.18 °C with humidity 18.89%. Keeping in view above all, it is predicted that population of this pest will increase during the coming week.

**Jassid:** This pest flourish best in hot humid climate with optimum temperature 35-40 °C with relative humidity above 70%. Maximum lethal temperature for this pest is 45-51 °C. The current weather conditions on overall Punjab basis (temp. Max. 45.17 °C, Min. 29.66 °C with R. humidity 37.08%) & forecast for the next week temp. Max. 45.32 °C, Min. 33.18 °C with humidity 18.89%. Keeping in view above all, it is predicted that population of this pest will sustain during the coming week.

**Thrips:** This pest flourish best in hot dry climate with optimum temperature 35-50 °C with relative humidity below 60%. Maximum lethal temperature for this pest is 45-51 °C. The current weather conditions on overall Punjab basis (temp. Max. 45.17 °C, Min. 29.66 °C with R. humidity 37.08%) & forecast for the next week temp. Max. 45.32 °C, Min. 33.18 °C with humidity 18.89%. Keeping in view above all, it is predicted that population of this pest may increase during the coming week.

**Mealy Bug:** This pest flourish best moderate climate with optimum temperature 35-50 °C with relative humidity above 60-80%. Maximum lethal temperature for this pest is 45-51 °C. The current weather conditions on overall Punjab basis (temp. Max. 45.17 °C, Min. 29.66 °C with R. humidity 37.08%) & forecast for the next week temp. Max. 45.32 °C, Min. 33.18 °C with humidity 18.89%. Keeping in view above all, it is predicted that population of this pest may increase on cotton crop during the coming week.

**Mites:** This pest flourish best in dry climate with optimum temperature 28-40 °C with relative humidity above 40-50%. Maximum lethal temperature for this pest is 45 °C. The current weather conditions on overall Punjab basis (temp. Max. 45.17 °C, Min. 29.66 °C with R. humidity 37.08%) & forecast for the next week temp. Max. 45.32 °C, Min. 33.18 °C with humidity 18.89%. Keeping in view above all, it is predicted that population of this pest may increase during the coming week due to low humidity & high temperature.

**Aphid:** This pest flourish best moderate climate with optimum temperature 15-33°C with relative humidity above 50-80%. Maximum lethal temperature for this pest is 45-51 °C. The current weather conditions on overall Punjab basis (temp. Max. 45.17 °C, Min. 29.66 °C with R. humidity 37.08%) & forecast for the next week temp. Max. 45.32 °C, Min. 33.18 °C with humidity 18.89%. Keeping in view above all, it is predicted that attack of this pest is not expected during the coming week due to low humidity & high temperature.

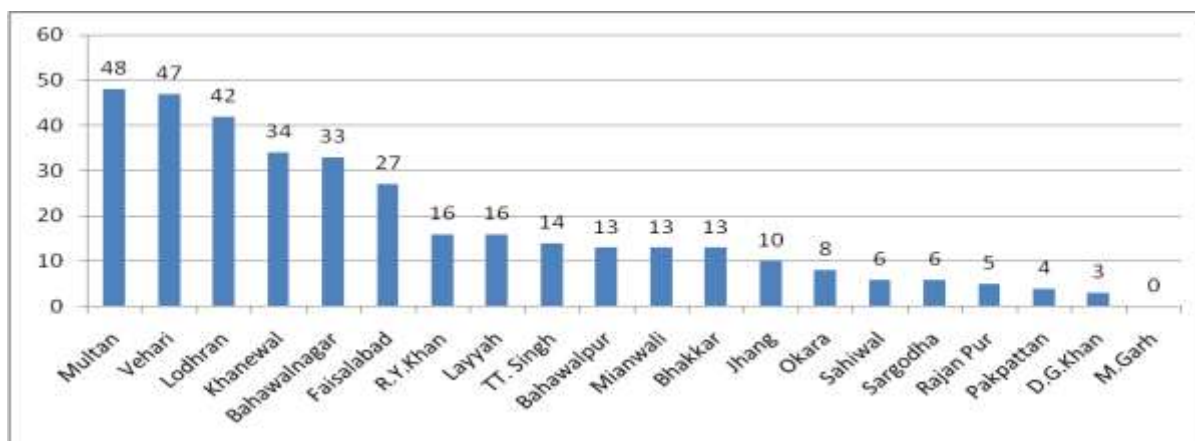
**Dusky Cotton Bug:** This pest flourish best moderate climate with optimum temperature 28-40 °C with relative humidity above 50-80%. The current weather conditions on overall Punjab basis (temp. Max. 45.17 °C, Min. 29.66 °C with R. humidity 37.08%) & forecast for the next week temp. Max. 45.32 °C, Min. 33.18 °C with humidity 18.89%. Keeping in view above all, it is predicted that population of this pest may increase during the coming week due to low humidity & high temperature.

**Pink Bollworm:** This pest flourish best at moderate climate with optimum temperature 32-40 °C with relative humidity above 60-80%. Maximum lethal temperature for this pest is 45-53 °C. The current weather conditions on overall Punjab basis (temp. 45.17 °C, Min. 29.66 °C with R. humidity 37.08%) & forecast for the next week temp. Max. 45.32 °C, Min. 33.18 °C with humidity 18.89%. As early cotton sowing was banned in the Punjab by implementing Section 144 and due to early stage of crop it is predicted that population of this pest may increase in the next week on cotton.

Moth Catches in Pheromone Traps During 1 <sup>st</sup> Week of June, 2018			
District	Traps Installed	Moth catches/Trap/week	Av. Moth catches/Trap/night
Multan	6	48	1.14
Khanewal	8	34	0.61
Vehari	6	47	1.12
Lodhran	6	42	1.00
Sahiwal	5	6	0.21
Pakpattan	4	4	0.14
Okara	4	8	0.29
Bahawalpur	8	13	0.23
Bahawalnagar	10	33	0.47
R.Y.Khan	8	16	0.29
D.G.Khan	4	3	0.11
M.Garh	8	0	0.00
Rajan Pur	6	5	0.12
Layyah	6	16	0.38
Sargodha	1	6	0.43
Mianwali	2	13	0.46
Bhakkar	4	13	0.23
Faisalabad	5	27	0.77
TT. Singh	6	14	0.33
Jhang	4	10	0.36

*Note. 3 moth catches on 3 consecutive nights in a trap is considered as ETL*

District wise PBW moth catches graph





**American Bollworm:** This pest flourish best at dry & moderate climate with optimum temperature 32-40 °C with relative humidity above 50-70%. Maximum lethal temperature for this pest is 45-53 °C. The current weather conditions on overall Punjab basis (temp. Max. 45.17 °C, Min. 29.66 °C with R. humidity 37.08%) & forecast for the next week temp. Max. 45.32 °C, Min. 33.18 °C with humidity 18.89%. As early cotton sowing was banned in the Punjab by implementing Section 144 and cultivation of more BT varieties, so keeping in view above all, it is predicted that population of this pest may sustain on cotton crop.

Moth Catches on Light Traps/Trap/week During 1 <sup>st</sup> Week of June, 2018				
District	Traps Installed	A.B.W	S.B.W	Armyworm
Multan	3	3.0	0.0	3.7
Khanewal	4	3.3	0.0	8.5
Vehari	3	0.0	0.0	2.0
Lodhran	3	1.3	1.7	3.0
Sahiwal	2	1.0	0.0	0.5
Pakpattan	2	0.0	0.0	1.5
Okara	2	0.0	0.0	0.0
Bahawalpur	4	0.3	0.3	0.8
Bahawalnagar	5	1.8	0.0	2.0
R.Y.Khan	4	2.3	1.8	2.8
D.G.Khan	2	0.0	0.5	0.0
M.Garh	4	2.3	2.0	2.8
Rajanpur	3	0.0	0.3	0.0
Layyah	3	0.0	0.0	3.0

Note. 3 moth catches of a pest on 3 consecutive nights in a trap is considered as ETL

**Spotted Bollworm:** This pest flourish best at mild & humid climate with optimum temperature 30-40 °C with relative humidity above 60-100%. Maximum lethal temperature for this pest is 45-53 °C. The current weather conditions on overall Punjab basis (temp. Max. 45.17 °C, Min. 29.66 °C with R. humidity 37.08%) & forecast for the next week temp. Max. 45.32 °C, Min. 33.18 °C with humidity 18.89%. As early cotton sowing was banned in the Punjab by implementing Section 144 and due to cultivation of more BT varieties, it is predicted that population of this pest may sustain on cotton crop in the coming week.

**Armyworm:** This pest flourishes best in mild & humid climate with optimum temperature 30-40 °C with relative humidity below 70-100%. Maximum lethal temperature for this pest is 45-53 °C. The current weather conditions on overall Punjab basis (temp. Max. 45.17 °C, Min. 29.66 °C with R. humidity 37.08%) & forecast for the next week temp. Max. 45.32 °C, Min. 33.18 °C with humidity 18.89%. Keeping in view above all, it is predicted that population of this pest may increase during the coming week.

## RECOMMENDATIONS

### WHITEFLY MANAGEMENT

1. Conduct regular pest scouting of Whitefly.
2. Control the pest without delay when population reaches ETL i.e. nymphs or adults or both 5 per leaf.
3. Control weeds in and outside the field especially near water channels and fallow lands.

### ALTERNATE HOST PLANTS OF WHITEFLY

Crops	Vegetables	Orchards	Weeds/ Ornamentals	Trees
Sunflower	Okra	Citrus	Gardenia	Shisham
Tobacco	Brinjal	Litchi	Mako	Shareen
	Cucurbits	Pomegranate	Maina	
	Tomato	Ber ( <i>Zizyphus</i> )	Karund	
	Cabbage	Guava	Lehli	
	Cauliflower	Mulbery		
	Peas	Papaya		
	Potato			
	Onion			
	Spinach			

### JASSID MANAGEMENT

1. Eradicate weeds.
2. Conduct Pest Scouting at least twice a week.
3. Use *Chrysoperla* Cards @ 80-90 cards per acre having 20-25 eggs on each card which are available at AARI Faisalabad, Sahiwal, Okara and Vehari. (Repeat this process after every two weeks).

### THRIPS MANAGEMENT

1. Conduct Pest Scouting regularly at least twice a week.
2. Avoid intercropping of cotton crop with vegetables.
3. Control weeds in and outside the field.

### MEALY BUG MANAGEMENT

1. Visit the fields daily to detect the infestation for effective management of mealy bug well in time.

2. Keep field and water courses etc. free from weeds especially Itsit & Hazaardani.
3. To avoid its shifting from one place to another, keep the horticultural nurseries free from its infestation. Spray such infested nurseries before shifting the plants.
4. Uproot and keep the infested plants gently in plastic bags and bury in the soil outside the field.
5. Avoid water stress to the plants.
6. Avoid repeated visits of workers from infested fields to healthy fields.

### **ALTERNATE HOST PLANTS OF COTTON MEALY BUG**

<b>Crops</b>	<b>Vegetables</b>	<b>Ornamentals</b>	<b>Weeds</b>	<b>Orchards</b>
Sunflower	Okra	China Rose	Hazar Dani	Citrus
Tobacco	Brinjal	Huddle	Amarantus	Mulbery
Jantar	Tomato	Cotton Rose	Bhakra	Ficus
Sesame	Chillies	Gulchain	Mako	Ber
	Pumpkin	Lantana	Sueda	
		Din Ka Raja	Itsit	
		Rat Ki Rani	Karund	
		Anthorium	Aksen	
		Gul-e-Daudi	Bathu	
		Gainda	Puth Kanda	
			Kanghi	

### **MANAGEMENT OF DUSKY COTTON BUG**

1. Eradicate weeds.
2. Conduct Pest Scouting at least twice a week.
3. Remove alternate host plants

### **MANAGEMENT OF ARMYWORM**

1. Keep the fields clean from weeds especially Its it which is a preferred host of armyworm.
2. Avoid sowing of Jantar near cotton fields.
3. Regular pest scouting at least twice a week.
4. Hand picking and destruction of egg masses at initial stage as initially its attack starts in patches and is clearly visible.

### **CLCuV MANAGEMENT**

1. Keep Cotton fields free from all kinds of weeds.
2. Eradicate other alternate host plants of CLCuV and dispose them off carefully.

3. Thinning out and destruction of Virus affected plants.
4. Remove CLCuV effected plants in less than 60 DAS (Days after sowing) crop.
5. Hoeing after each irrigation or rain at wattar condition till canopies permit.
6. Apply post emergence Glyphosate for both broad and narrow leaved weeds and Glyphosate for grassy weeds with shield and use Flat Fan Nozzle, if needed.
7. Irrigate the fields when needed keeping in view weather conditions e.g. temperature, rainfall, soil water holding capacity and plant need.
8. Balanced use of Fertilizer i.e. N.P.K.
9. Keep transmission vector (whitefly) at the low ebb

#### **ALTERNATE HOST PLANTS OF CLCV**

<b>Crops</b>	<b>Vegetables</b>	<b>Ornamentals</b>	<b>Weeds</b>
Sunflower	Okra	Gurhal	Leh
Melon	Brinjal	Chambeli	Lehli
Tobacco	Chillies		Mako
	Tomato		Maina
	Potato		Karund/Bathu
	Cucumber		Gardenia
			Hazardani
			Rattanjot
			Sun Kukra

#### **ECONOMIC THRESHOLD LEVELS OF COTTON PESTS**

<b>INSECT PESTS</b>	<b>ECONOMIC THRESHOLD LEVELS</b>
Jassid	1 Adult or Nymph per leaf
Whitefly	5 Adults or Nymphs or both per Leaf
Thrips	8-10 Adults or Nymphs per Leaf
Cotton mealy bug	On appearance
Mites	On damage appearance
Spotted Bollworm	3 Larvae/ 25 plants.
Pink Bollworm	5 Larvae /100 bolls.
<i>Helicoverpa</i>	5 brown eggs or 3 small larvae or both 5 per 25 plants on non Bt varieties. 2 larvae of 2 <sup>nd</sup> instar per 25 plants on Bt varieties.
Armyworm	On appearance
Aphid	Spray on visible damage on top terminals.
Dusky Cotton bug	10 per leaf/bud