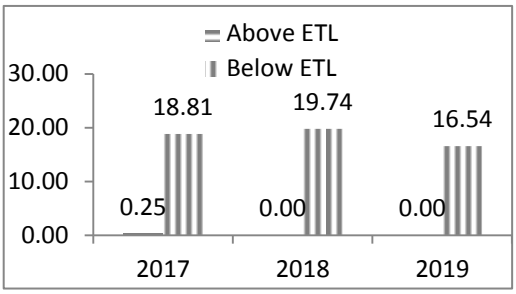
PEST SITUATION ON COTTON CROP IN PUNJAB DURING 3RD WEEK OF MAY, 2019

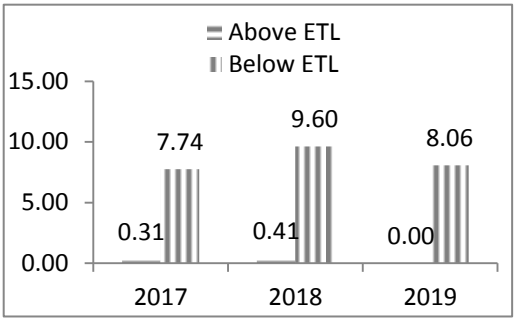
Whitefly: On overall Punjab basis 0.00% above ETL spots have been observed during current week as compared to 0.00% % in last week and 0.00% during the same corresponding period of last year. And 16.54% below ETL spots have been observed during current week as compared to 13.87% in last week and 19.74% during the same corresponding period of last year.



Tehsil wise percentage of hot spots of whitefly

No hot spot found yet.

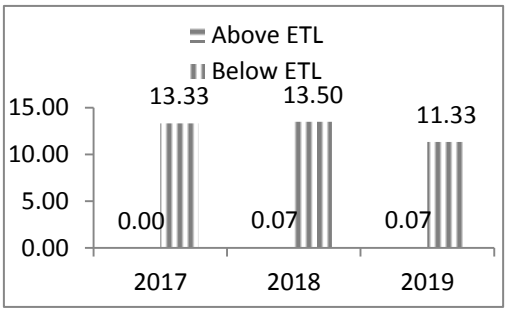
Jassid: On overall Punjab basis 0.00% above ETL spots has been observed as compared to 0.00% in last week and same week of last year 0.41%. And 8.06% below ETL spots have been observed during current week as compared to 5.55% in last week and 9.60% during the same corresponding period of last year.



Tehsil wise percentage of hot spots of Jassid

No hot spot found yet.

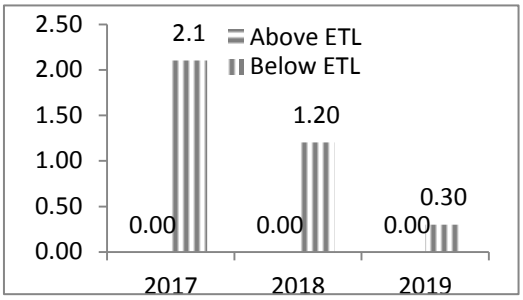
Thrips: On overall Punjab basis 0.07% above ETL spots has been observed as compared to 0.00% in last week and same week of last year i.e. 0.07%. And 11.33% below ETL spots have been observed during current week as compared to 10.67% in last week and 13.50% during the same corresponding period of last year.



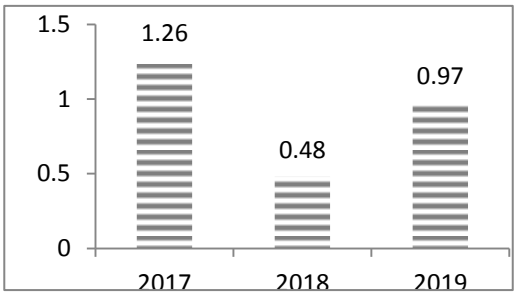
Tehsil wise percentage of hot spots of thrips

S. NO.	TEHSIL	%AGE
1	MIAN CHANNU	2.3

Dusky Cotton Bug: On overall Punjab basis 0.00% above ETL spots 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. And 0.3% below ETL spots have been observed during current week as compared to 0.3% in last week and 1.2% during the same corresponding period of last year.



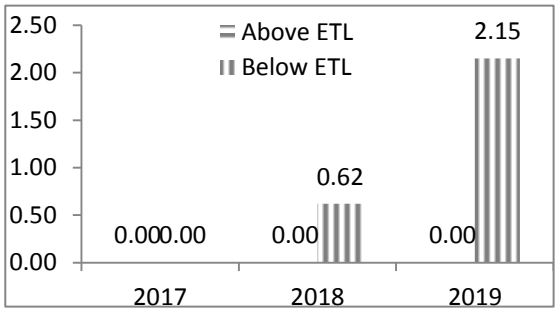
Armyworm: On overall Punjab basis 0.97% spots (all considered above ETL) of Armyworm have been observed as compared to 0.64% in last week and 0.48% spots during the same corresponding period of the last year.



Tehsil wise percentage of hot spots of Army worm

S. NO.	TEHSIL	%AGE	S.NO.	TEHSIL	%AGE
1	JHANG	20.0	5	VEHARI	4.3
2	SHORKOT	7.1	6	R.Y.KHAN	3.8
3	T.T.SINGH	5.9	7	SAHIWAL	2.9
4	MIAN CHANNU	4.7	8	CHICHA WATNI	2.5

Pink Boll Worm: On overall Punjab basis 0.00% above ETL spots have been observed as compared to 0.11% in last week and 0.00% same corresponding period of the last year. And 2.15% below ETL spots have been observed as compared to 0.53% in last week and 0.62% during same corresponding period of last year.



American Bollworm: On overall Punjab basis 0.00% above ETL spots have been observed as compared to 0.00% in last week and 0.00% during same corresponding period of last year. And 0.00% below ETL spots have been observed as compared to 0.00% in last week and 0.00% during same corresponding period of last year.

Tehsil wise percentage of hot spots of American boll worm

No hot spot found yet.

Spotted Bollworm: On overall Punjab basis 0.00% above ETL spots have been observed as compared to 0.00% in last week and 0.00% during same corresponding period of last year & 0.00% below ETL spots have been observed as compared to 0.00% in last week and 0.00% during same corresponding period of last year.

Tehsil wise percentage of hot spots of spotted Boll worm

No hot spot found yet.

CLCuV: On overall Punjab basis 0.00% spots (all considered above ETL) of CLCV have been observed as compared to 0.00% in last week and 0.00% during the same corresponding period of the last year.

Tehsil wise percentage of hot spots of cotton leaf curl virus

No hot spot found yet.

FORECAST FOR THE NEXT WEEK

Table 11 Meteorological data of the current week 2019-2018

Districts	2019				2018			
	Temperature		R.H%	Rainfall (mm)	Temperature °C		RH%	Rainfall (mm)
	Max.	Min.			Max.	Min.		
Multan	33.57	24.29	60.93	11.40	37.30	27.50	54.30	4.00
Khanewal	34.44	24.76	67.71	11.00	42.00	26.70	36.90	0.70
Vehari	34.73	25.13	68.38	18.00	41.20	27.80	45.92	0.40
Lodhran	34.00	24.14	69.57	21.00	37.00	25.43	39.64	0.30
Sahiwal	35.04	21.84	56.13	2.00	38.00	21.00	44.75	0.00
Pakpattan	40.57	25.57	41.71	5.00	43.29	28.57	44.00	0.00
Okara	42.00	32.50	72.00	0.00	36.40	27.40	76.00	0.00
Bahawalpur	35.83	22.47	56.83	15.30	38.17	24.82	44.08	6.00
Bahawalnagar	35.43	21.79	53.36	4.57	40.07	25.43	36.21	0.00
R.Y.Khan	37.00	21.71	62.29	0.00	41.27	25.06	61.50	0.00
D.G.Khan	39.13	26.25	61.81	5.00	42.88	25.00	58.06	0.00
M.Garh	35.43	25.14	68.00	0.00	41.51	26.01	30.79	0.00
Rajanpur	40.86	26.34	64.00	25.00	39.86	28.24	61.40	0.00
Layyah	37.16	24.00	50.50	4.00	41.50	26.00	39.83	0.00
TOT/AVG	**36.80**	**24.71**	**60.94**	**122.27**	**40.03**	**26.07**	**48.10**	**11.40**

Weather forecast for next 7 day in cotton zone

Division	Dated	21/5	22/5	23/5	24/5	25/5	26/5	27/5
Multan	Max.Temp.	41	40	38	38	40	41	36
	Min.Temp.	26	28	26	25	28	27	29
	Humidity %	17	22	25	26	19	17	10
Sahiwal	Max.Temp.	41	40	38	38	40	43	37
	Min.Temp.	25	27	26	25	26	27	29
	Humidity %	17	19	28	28	19	11	10
Bahawalpur	Max.Temp.	41	41	40	39	41	42	38
	Min.Temp.	27	28	26	26	29	29	27
	Humidity %	19	20	24	25	16	13	9
D.G. Khan	Max.Temp.	41	40	38	38	40	40	36
	Min.Temp.	26	27	26	26	29	29	29
	Humidity %	18	23	29	26	18	21	10
Average Cotton Region	**Max.Temp.**	**39.50**						
	Min.Temp.	**27.07**						
	Humidity %	**19.25**						

Source: ***timeanddate.com***

Summary of weather forecast

Overall weather for seven days in cotton zone during next week will remain hot and dry.

Forecast of Sucking Pests:

Whitefly: This pest flourishes best in hot dry climate with optimum temperature 35-42 °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. 36.80 °C, Min. 24.71 °C with R. humidity 60.94%) & forecast for the next week temp. Max. 39.50 °C, Min. 27.07°C with humidity 19.25%. Keeping in view above all, it is predicted that population of this pest will increase during the coming week.

Jassid: This pest flourishes best in hot and 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. 36.80 °C, Min. 24.71 °C with R. humidity 60.94%) & forecast for the next week temp. Max. 39.50 °C, Min. 27.07°C with humidity 19.25%. Keeping in view above all, it is predicted that population of this pest will increase during the coming week.

Thrips: This pest flourishes best in hot dry climate with optimum temperature 35-40 °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. 36.80 °C, Min. 24.71 °C with R. humidity 60.94%) & forecast for the next week temp. Max. 39.50 °C, Min. 27.07°C with humidity 19.25%. Keeping in view above all, it is predicted that population of this pest will increase during the coming week.

Mealy Bug: This pest flourishes best in moderate climate with optimum temperature 35-40 °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. 36.80 °C, Min. 24.71 °C with R. humidity 60.94%) & forecast for the next week temp. Max. 39.50 °C, Min. 27.07°C with humidity 19.25%. Keeping in view above all, it is

predicted that population of this pest will sustain as such on cotton crop during the coming week.

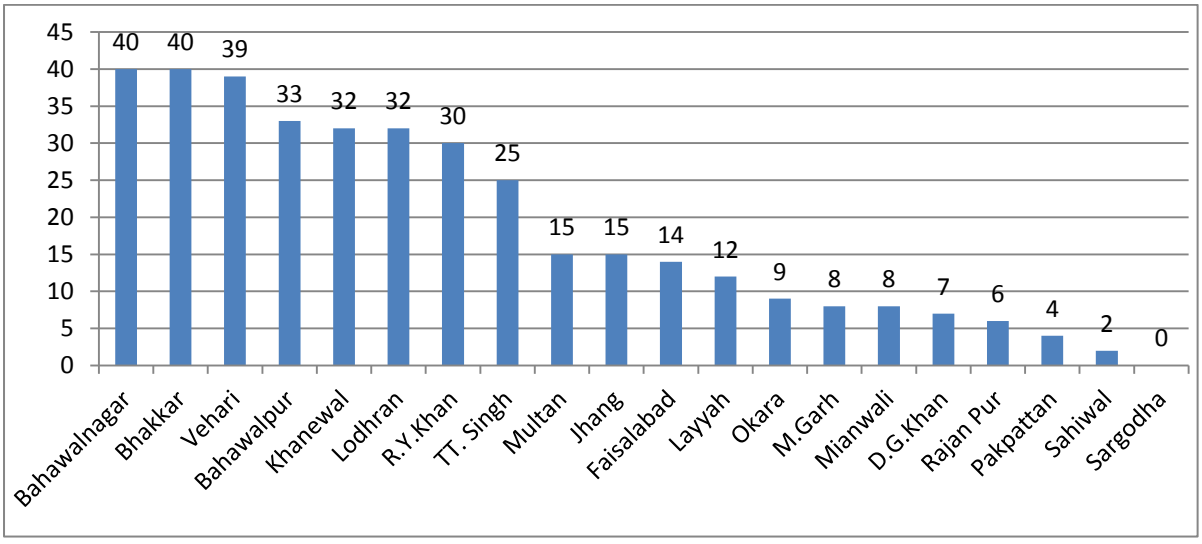
Mites: This pest flourishes best in dry climate with optimum temperature 28-40 °C with relative humidity above 40-50%. Maximum lethal temperature for this pest is 45 °C. The current weather conditions on overall Punjab basis (temp. Max. 36.80 °C, Min. 24.71 °C with R. humidity 60.94%) & forecast for the next week temp. Max. 39.50 °C, Min. 27.07°C with humidity 19.25%. Keeping in view above all, it is predicted that population of this pest will sustain as such during the coming week.

Dusky Cotton Bug: This pest flourishes best in moderate climate with optimum temperature 28-40 °C with relative humidity above 50-80%. The current weather conditions on overall Punjab basis (temp. Max. 36.80 °C, Min. 24.71 °C with R. humidity 60.94%) & forecast for the next week temp. Max. 39.50 °C, Min. 27.07°C with humidity 19.25%. Keeping in view above all, it is predicted that population of this pest may increase during the coming week.

Pink Bollworm: Although PBW moths catches have been observed in pheromone installed traps in various cotton districts as given in the Table 13, Pest situation reveals that its population on (below ETL) has increased as compared to last week and same week of last year on cotton crop. This pest flourishes 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. 36.80 °C, Min. 24.71 °C with R. humidity 60.94%) & forecast for the next week temp. Max. 39.50 °C, Min. 27.07°C with humidity 19.25%. It is predicted that population of this pest will increase on cotton during the coming week.

Moth Catches in Pheromone Traps during 3rd Week of May, 2019

Moth Catches in Pheromone Traps During 3rd Week of May, 2019			
District	**Traps Installed**	**Moth catches/Trap/week**	**Av. Moth catches/Trap/night**
Multan	6	15	0.36
Khanewal	8	32	0.57
Vehari	6	39	0.93
Lodhran	6	32	0.76
Sahiwal	4	2	0.07
Pakpattan	4	4	0.14
Okara	4	9	0.32
Bahawalpur	8	33	0.59
Bahawalnagar	10	40	0.57
R.Y.Khan	8	30	0.54
D.G.Khan	6	7	0.17
M.Garh	8	8	0.14
Rajan Pur	6	6	0.14
Layyah	6	12	0.29
Sargodha	2	0	0.00
Mianwali	4	8	0.29
Bhakkar	9	40	0.63
Faisalabad	5	14	0.40
TT. Singh	6	25	0.60
Jhang	4	15	0.54
Note. 3 moth catches on 3 consecutive nights in a trap is considered as ETL			



American Bollworm: Moth catches in light traps show the emergence of ABW, however, the pest may breed/increase on vegetables and other host plants. Its moths have been observed in almost all districts except district Bahawalpur and all districts of DG Khan division. No spot has been observed of this pest like same week of last year on cotton crop. This pest flourishes 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. 36.80 °C, Min. 24.71 °C with R. humidity 60.94%) & forecast for the next week temp. Max. 39.50 °C, Min. 27.07°C with humidity 19.25%. It is predicted that population of this pest will remain zero on cotton crop during the coming week.

Moth catches on light traps during 3rd week of May, 2019

Moth Catches on Light Traps/Trap/week During 3rd Week of May, 2019				
District	**Traps Installed**	**A.B.W**	**S.B.W**	**Armyworm**
Multan	3	5	2	13
Khanewal	4	5	0	16
Vehari	3	2	0	9
Lodhran	3	3	0	10
Sahiwal	2	3	0	2
Pakpattan	2	5	0	2
Okara	3	3	0	0
Bahawalpur	4	0	0	5
Bahawalnagar	5	14	1	16
R.Y.Khan	4	9	4	12
D.G.Khan	3	0	0	0
M.Garh	4	0	0	5
Rajan Pur	3	0	0	0
Layyah	3	0	0	0
Note. 3 moth catches of a pest on 3 consecutive nights in a trap is considered as ETL				

Spotted Bollworm: Light traps data shows its emergence but it may not be a problem on cotton at this stage. No spot has been observed of this pest like same week of last year on cotton crop. This pest flourishes 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. 36.80 °C, Min. 24.71 °C with R. humidity 60.94%) & forecast for the next week temp. Max. 39.50 °C, Min. 27.07°C with humidity 19.25%. Due to cultivation of more BT varieties, it is predicted that population of this pest will remain zero on cotton crop in the coming week.

Armyworm: Its moth population has been observed on light traps in all districts except Okara, DG Khan, Rajanpur and Layyah. Pest situation reveals that attack of Armyworm has decreased as compared to same week of last year. 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 36.80 °C, Min. 24.71 °C with R. humidity 60.94%) & forecast for the next week temp. Max. 39.50 °C, Min. 27.07°C with humidity 19.25%. Keeping in view above all, it is predicted that population of this pest will increase during the coming week.

CLCuV: No spot has been observed of this disease like same week of last year on cotton crop. The incidence of this disease is expected to sustain as such on cotton crop the next 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 (*Zizyphus*)	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

Crops	Vegetables	Ornamentals	Weeds	Orchards
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 ARMY WORM

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 CLCuV

Crops	Vegetables	Ornamentals	Weeds
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

Insect pests	Economic threshold levels
Jassid	1 Adult or Nymph per leaf
Whitefly	5 Adults or Nymphs or both per Leaf
Thrips	8-10 Adults or Nymphs per Leaf
Mealy bug	on appearance
Mites	On damage appearance
Spotted Boll worm	3 Larvae/ 25 plants.
Pink Boll worm	5 Larvae /100 bolls.
American boll worm	5 brown eggs or 3 small larvae or both 5 per 25 plants on non Bt varieties. 2 larvae of 2nd instar per 25 plants on Bt varieties.
Army worm	0 (On appearance)
Aphid	Spray on visible damage on top terminals.
Dusky Cotton bug	10 per leaf/bud