PEST SITUATION ON COTTON CROP IN PUNJAB DURING 4TH WEEK OF MAY, 2018

Whitefly:

On overall Punjab basis 0.15% spots above ETL have been observed during current week as compared to 0.00% % in last week and 0.31% during the same corresponding period of last year & 25.88% spots below ETL have been observed during current week as compared to 19.74% in last week and 28.73% during the same corresponding period of last year.

Sr.	TEHSIL	%AGE
1	DEPALPUR	12.5
2	CHICHAWATNI	2.3

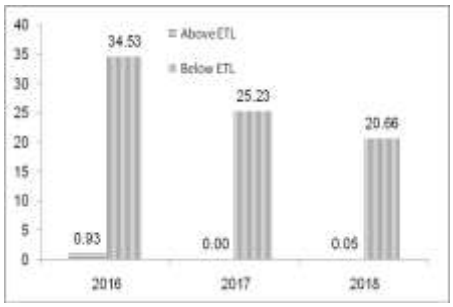
Jassid:

On overall Punjab basis 0.83% ABETL has been observed as compared to 0.41% in last week and same week of last year 0.51% & BETL 16.08% spots have been observed during current week as compared to 9.60% in last week and 12.46% during the same corresponding period of last year.

Sr.	TEHSIL	%AGE	Sr.	TEHSIL	%AGE
1	OKARA	11.8	7	MAILSI	3.1
2	CHICHA WATNI	6.9	8	MULTAN	2.5
3	DEPALPUR	6.3	9	SAHIWAL	2.5
4	MIAN CHANNU	6.0	10	KABIR WALA	2.4
5	PAK PATTAN	5.6	11	A.P.EAST	2.0
6	BAHAWAL PUR	3.6			

Thrips:

On overall Punjab basis 0.05 AETL has been observed as compared to 0.07% in last week and same week of last year i.e. 0.00% & BETL 20.66% spots have been observed during current week as

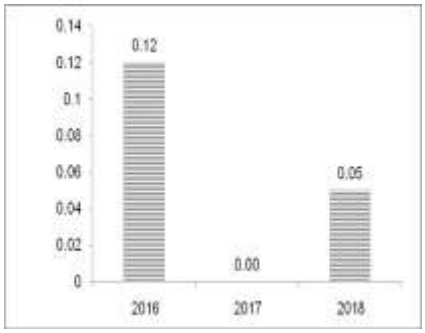


compared to 13.50% in last week and 25.23% during the same corresponding period of last year.

Sr.	TEHSIL	%AGE
1	LODHRAN	1.0

Mealy Bug:

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



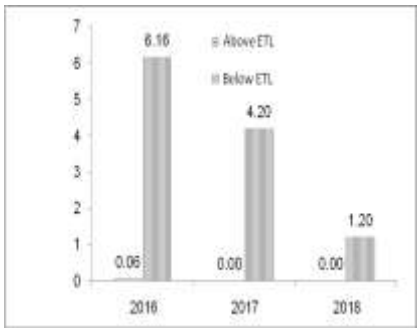
Sr.	TEHSIL	%AGE
1	T.T.SINGH	1.3

Mites:

On overall Punjab basis 0.00% spots above ETL have been observed during current week as compared to 0.00% in last week and 0.00% during the same corresponding period of last year & 0.05% spots below ETL have been observed during current week as compared to 0.00% in last week and 0.51% during the same corresponding period of last year.

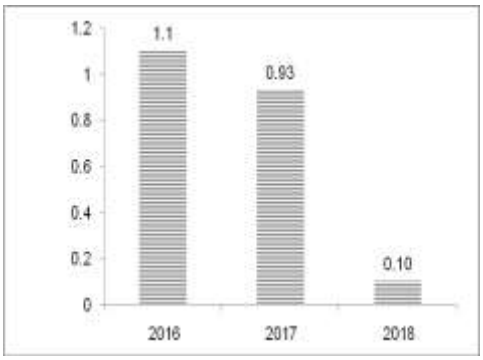
Dusky Cotton Bug:

On overall Punjab basis 0.00% spots above ETL have been observed during current week as compared to 0.00% in last week and 0.00% during the same corresponding period of last year & 1.2% spots below ETL have been observed during current week as compared to 1.2% in last week and 4.2% during the same corresponding period of last year.



Armyworm:

On overall Punjab basis 0.10% spots of Armyworm have been observed as compared to 0.48% in last week and 0.93% spots during the same corresponding period of the last year.

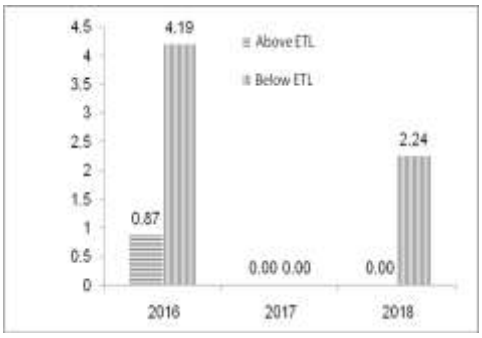


Its infestation above ETL has been witnessed Tehsil wise as under:-

Sr.	TEHSIL	%AGE
1	FAISAL ABAD	3.3

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 & 2.24% spots of PBW below ETL have been observed as compared to 0.62% in last week and 0.00% 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 of 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.

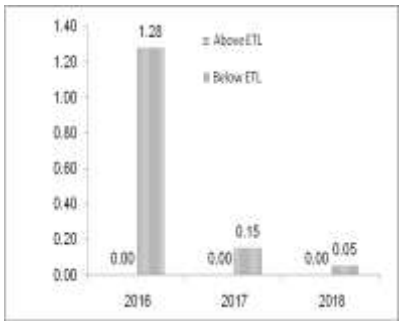


Its infestation below ETL has been witnessed Tehsil wise as under

Sr.	TEHSIL	%AGE	Sr.	TEHSIL	%AGE
1	SHORKOT	15.4	10	MIAN CHANNU	4
2	HASILPUR	15.0	11	YAZMAN	3.9
3	T.T.SINGH	12.0	12	GOJRA	3.6
4	OKARA	11.8	13	KEHROR PACCA	3.2
5	KAMALIA	8.3	14	LODHRAN	2.9
6	MAILSI	6.3	15	MUZUFAR GARH	2.5
7	JHANG	6.1	16	KABIR WALA	2.5
8	PAK PATTAN	5.6	17	BURE WALA	2.4
9	VEHARI	4.4	18	DUYAPUR	2.1

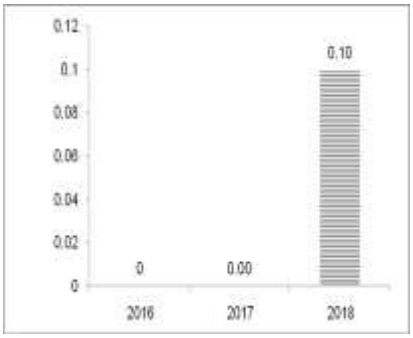
American Bollworm:

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 & 0.05% spots of ABW below ETL have been observed as compared to 0.00% in last week and 0.15% 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.



CLCUV:

On overall Punjab basis 0.1% spots of CLCV have been observed as compared to 0.00% in last week and 0.0% 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	Sr.	TEHSIL	%AGE
1	MIAN CHANNU	2.4	2	T.T.SINGH	1.3

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	38.67	26.33	55.92	4.00	38.83	27.83	63.92	0.00
Khanewal	40.14	25.49	36.14	0.00	43.20	29.23	28.57	0.00
Vehari	44.80	30.29	50.89	0.00	40.89	28.44	34.44	0.22
Lodhran	40.71	25.71	28.50	0.00	41.29	27.29	42.29	0.00
Sahiwal	42.10	25.30	26.80	0.00	39.60	25.20	40.80	0.00
Pakpattan	43.86	26.71	25.29	0.00	42.14	28.71	26.86	0.00
Okara	42.80	25.60	54.00	0.00	40.10	26.10	66.00	2.00
Bahawalpur	40.93	24.33	34.81	0.00	42.04	27.34	41.80	0.00
Bahawalnagar	43.58	26.92	24.50	0.00	43.00	29.42	39.42	0.00
R.Y.Khan	43.02	23.31	33.06	0.00	44.20	27.48	43.63	0.00
D.G.Khan	39.00	22.57	54.07	0.00	38.86	22.57	43.92	0.00
M.Garh	40.81	24.70	30.79	0.00	40.95	26.80	36.42	0.00
Rajanpur	40.96	24.86	62.00	0.00	39.60	25.24	35.80	0.50
Layyah	43.80	27.33	63.16	0.00	44.33	29.16	55.83	0.00
AVERAGE	**41.80**	**25.68**	**41.42**	**4.00**	**41.36**	**27.20**	**42.84**	**2.72**

WEATHER FORECAST FOR NEXT 7 DAY IN COTTON ZONE

Division	Dated	29/5	30/5	31/5	1/6	2/6	3/6	4/6
Multan	Max.Temp.	46	47	48	49	50	42	41
	Min.Temp.	31	30	28	33	33	34	32
	Humidity %	9	9	8	8	8	8	10
Sahiwal	Max.Temp.	45	46	47	48	49	50	41
	Min.Temp.	27	28	29	28	31	31	32
	Humidity %	9	9	9	8	8	8	8
Bahawalpur	Max.Temp.	46	46	48	49	48	48	43
	Min.Temp.	30	30	30	35	35	34	28
	Humidity %	9	9	4	7	11	9	13
D.G. Khan	Max.Temp.	45	46	48	49	50	50	42
	Min.Temp.	32	34	30	35	37	37	31
	Humidity %	9	8	5	3	6	7	11
Average Cotton Region	Max.Temp.	46.68						
	Min.Temp.	31.61						
	Humidity %	8.21						

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 conductive 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 35-40 °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. 41.80 °C, Min. 25.68 °C with R. humidity 41.42%) & forecast for the next week temp. Max. 46.68 °C, Min. 31.61 °C with humidity 8.21%. 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. 41.80 °C, Min. 25.68 °C with R. humidity 41.42%) & forecast for the next week temp. Max. 46.68 °C, Min. 31.61 °C with humidity 8.21%. Keeping in view above all, it is predicted that population of this pest will increase 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. 41.80 °C, Min. 25.68 °C with R. humidity 41.42%) & forecast for the next week temp. Max. 46.68 °C, Min. 31.61 °C with humidity 8.21%. 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. 41.80 °C, Min. 25.68 °C with R. humidity 41.42%) & forecast for the next week temp. Max. 46.68 °C, Min. 31.61 °C with humidity 8.21%. Keeping in view above all, it is predicted that population of this pest will 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. 41.80 °C, Min. 25.68 °C with R. humidity 41.42%) & forecast for the next week temp. Max. 46.68 °C, Min. 31.61 °C with humidity 8.21%. Keeping in view above all, it is predicted that population of this pest will increase during the coming week due to low humidity & high temperature.

Aphid:

This pest flourish best moderate climate with optimum temperature 15-33^{0}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. 41.80 °C, Min. 25.68 °C with R. humidity 41.42%) & forecast for the next week temp. Max. 46.68 °C, Min. 31.61 °C with humidity 8.21%. 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. 41.80 °C, Min. 25.68 °C with R. humidity 41.42%) & forecast for the next week temp. Max. 46.68 °C, Min. 31.61 °C with humidity 8.21%. Keeping in view above all, it is predicted that population of this pest will decrease 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. 41.80 °C, Min. 25.68 °C with R. humidity 41.42%) & forecast for the next week temp. Max. 46.68 °C, Min. 31.61 °C with humidity 8.21%. 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. The maximum average no. of moth catches per trap per night was found in district Multan while the minimum was found in district D.G.Khan 0.07.

Moth Catches in Pheromone Traps During 4th Week of May, 2018

District	Traps Installed	Moth catches/Trap/week	Av. Moth catches/Trap/night
Multan	6	45	1.07
Khanewal	8	47	0.84
Vehari	6	48	1.14
Lodhran	6	40	0.95
Sahiwal	5	11	0.39
Pakpattan	4	3	0.11
Okara	4	5	0.18
Bahawalpur	8	13	0.23
Bahawalnagar	10	37	0.53
R.Y.Khan	8	18	0.32
D.G.Khan	4	2	0.07
M.Garh	8	11	0.20
Rajan Pur	6	10	0.24
Layyah	6	10	0.24
Sargodha	1	8	0.57
Mianwali	2	7	0.25
Bhakkar	4	11	0.20
Faisalabad	5	34	0.97
TT. Singh	6	16	0.38
Jhang	4	8	0.29

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 Multan, Khanewal, Vehari, Lodhran, Sahiwal, Bahawalpur, Bahawalnagar, R.Y.Khan, D.G. Khan, Muzaffar Garh, Rajanpur.

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. 41.80 °C, Min. 25.68 °C with R.

Moth Catches on Light Traps/Trap/week During 4th Week of May, 2018

District	Traps Installed	A.B.W	S.B.W	Armyworm
Multan	3	3.3	0.0	3.3
Khanewal	4	3.3	0.0	8.5
Vehari	3	0.3	0.0	4.0
Lodhran	3	1.3	1.3	3.3
Sahiwal	2	1.5	0.0	1.0
Pakpattan	2	0.0	0.0	1.0
Okara	2	0.0	0.0	0.0
Bahawalpur	4	0.3	0.3	1.0
Bahawalnagar	5	1.0	1.4	1.2
R.Y.Khan	4	2.3	1.8	2.8
D.G.Khan	2	0.5	0.5	0.5
M.Garh	4	2.0	2.3	2.3
Rajan Pur	3	0.3	0.0	0.0
Layyah	3	0.0	0.0	4.3

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

humidity 41.42%) & forecast for the next week temp. Max. 46.68 °C, Min. 31.61 °C with humidity 8.21%. 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.

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. 41.80 °C, Min. 25.68 °C with R. humidity 41.42%) & forecast for the next week temp. Max. 46.68 °C, Min. 31.61 °C with humidity 8.21%. 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. 41.80 °C, Min. 25.68 °C with R. humidity 41.42%) & forecast for the next week temp. Max. 46.68 °C, Min. 31.61 °C with humidity 8.21%. 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. No need of early chemical intervention and let the natural enemies to work.
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 minimum 20-25 eggs on each card which are available at AARI Faisalabad, Sahiwal, Okara and Vehari. (Repeat this process after every ten days).

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.
4. Avoid spray at early stage as the pyrite bug beneficial is attracted to early stage of nymph stage of thrips.

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.
7. Monitor the colonies of Black Ants around the cotton fields and control ants.

ALTERNATE HOST PLANTS OF COTTON MEALY BUG

Crops	Vegetables	Ornamentals	Weeds	Orchards
Sunflower	Okra	China Rose	Hazar Dani	Citrus
Tobacco	Brinjal	Huddle	Amarantus	Mulberry
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 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

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
Cotton mealybug	On appearance
Mites	On damage appearance
Spotted Bollworm	3 Larvae/ 25 plants.
Pink Bollworm	5 Larvae /100 bolls.
Helicoverpa	5 brown eggs or 3 small larvae or both 5 per 25 plants on non Bt varieties. 2 larvae of 2^{nd} 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