PEST SITUATION ON COTTON CROP IN PUNJAB DURING 1ST WEEK OF JUNE, 2020

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 21.21% below ETL spots have been observed during current week as compared to 14.10% in last week and 22.21% during the same corresponding period of last year.

Tehsil wise percentage of hot spots of White Fly

No hot spot find yet.

Jassid: On overall Punjab basis 0.45% above ETL spots has been observed as compared to 0.07% in last week and same week of last year 0.17%. And 16.32% below ETL spots have been observed during current week as compared to 8.71% in last week and 12.15% during the same corresponding period of last year.

Tehsil wise percentage of hot spots of Jassid

Sr#	TEHSIL	%AGE	Sr#	TEHSIL	%AGE
1	ALI PUR	7.4	5	KHAN PUR	2.4
2	SADIQ ABAD	5.0	6	CHICHA WATNI	2.2
3	MIAN CHANNU	2.6	7	CHISHTIAN	2.0
4	VEHARI	2.5			

Thrips: 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 i.e. 0.04%. And 28.84% below ETL spots have been observed during current week as compared to 19.19% in last week and 20.50% during the same corresponding period of last year.

Tehsil wise percentage of hot spots of Thrips

No hot spot find yet.

Mealy Bug: On overall Punjab basis 0.00% spots (all considered above ETL) of Mealy Bug have been observed as compared to 0.00% in last week and 0.08% spots during the same corresponding period of the last year.

Tehsil wise percentage of hot spots of Mealy Bug

No hot spot find yet.

Mites: 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 0.20% below ETL spots have been observed during current week as compared to 0.30% in last week and 0.08% during the same corresponding period of last year.

Tehsil wise percentage of hot spots of Mites

No hot spot find yet.

Dusky Cotton Bug: On overall Punjab basis 0.10% 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 9.68% below ETL spots have been observed during current week as compared to 6.86% in last week and 1.84% during the same corresponding period of last year.

Tehsil wise percentage of hot spots of Dusky Cotton Bug

Sr#	TEHSIL	%AGE	Sr#	TEHSIL	%AGE
1	BAHAWAL NAGAR	4.2	2	CHISHTIAN	2.0

Armyworm: On overall Punjab basis 0.70% spots (all considered above ETL) of Armyworm have been observed as compared to 1.11% in last week and 1.09% spots during the same corresponding period of the last year.

Tehsil wise percentage of hot spots of army worm

Sr#	TEHSIL	%AGE	Sr#	TEHSIL	%AGE
1	RENALA KHURD	16.7	4	SAHIWAL	6.3
2	OKARA	14.3	5	VEHARI	2.5
3	CHICHA WATNI	11.1	6	T.T.SINGH	2.2

Pink Boll Worm: On overall Punjab basis 0.30% above ETL spots have been observed as compared to 0.07% in last week and 0.33% same corresponding period of the last year. And 3.64% below ETL spots have been observed as compared to 2.95% in last week and 4.01% during same corresponding period of last year.

Tehsil wise percentage of hot spots of PBW

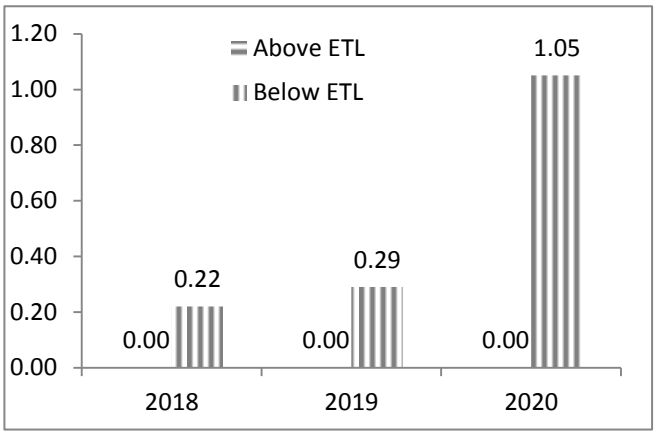
Sr#	TEHSIL	%AGE	Sr#	TEHSIL	%AGE
1	KHANEWAL	5.6	4	VEHARI	2.5
2	RENALA KHURD	5.6	5	BURE WALA	2.5
3	MIAN CHANNU	2.6			

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 1.05% below ETL spots have been observed as compared to 0.30% in last week and 0.29% during same corresponding period of last year.

Tehsil wise percentage of hot spots of American boll worm

No hot spot find 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 find 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 find yet.

FORECAST FOR THE NEXT WEEK

Meteorological data of the current week 2019-2020

Districts	2020				2019			
	Temperature		R.H%	Rainfall (mm)	Temperature °C		RH%	Rainfall (mm)
	Max.	Min.			Max.	Min.		
MULTAN	36.29	26.00	63.93	2.20	43.86	28.86	46.00	0.00
KHANEWAL	37.25	27.63	61.88	3.00	44.71	29.14	49.29	0.00
VEHARI	36.90	26.90	68.05	20.00	44.71	29.57	51.36	0.00
LODHRAN	35.71	25.57	64.86	11.00	44.57	29.43	42.14	0.00
Sahiwal	35.06	22.72	53.00	19.00	37.00	23.00	51.00	0.00
Pakpattan	42.00	26.00	48.40	5.00	38.20	26.80	49.60	0.00
Okara	35.00	22.00	59.00	4.00	36.00	24.00	58.00	0.00
Bahawalpur	37.65	24.64	51.94	1.57	43.28	26.28	42.00	0.00
Bahawalnagar	36.83	21.83	51.42	6.33	47.17	27.17	28.75	0.00
R.Y.Khan	40.62	25.87	76.62	0.00	48.19	30.81	66.00	0.00
D.G. Khan	39.63	28.38	63.06	2.00	44.29	32.71	52.21	0.00
Muzaffar Garh	39.75	27.62	29.57	0.00	42.86	30.57	29.92	0.00
Rajanpur	40.68	26.72	41.30	3.00	41.86	29.1	65.40	0.00
Layyah	36.43	23.86	47.86	1.00	42.71	31.14	41.43	7.00
TOT/AVG	**37.84**	**25.41**	**55.78**	**78.10**	**42.81**	**28.47**	**48.08**	**7.00**

Weather forecast for next 7 day in cotton zone

Division	Dated	8/6	9/6	10/6	11/6	12/6	13/6	14/6
Multan	**Max.Temp.**	43	43	44	43	45	45	41
	Min.Temp.	31	34	33	31	33	34	33
	Humidity %	24	22	20	23	18	20	9
Sahiwal	**Max.Temp.**	41	42	43	43	44	45	40
	Min.Temp.	28	30	31	30	31	32	32
	Humidity %	24	25	21	23	19	19	12
Bahawalpur	**Max.Temp.**	42	43	44	43	44	43	41
	Min.Temp.	30	33	31	32	31	32	30
	Humidity %	26	22	22	22	20	22	15
D.G. Khan	**Max.Temp.**	43	43	45	44	45	46	41
	Min.Temp.	26	33	33	32	33	34	33
	Humidity %	26	22	20	21	18	18	10
Average Cotton Region	**Max.Temp.**	**43.18**						
	Min.Temp.	**31.64**						
	Humidity %	**20.11**						

Source: ***timeanddate.com***

Summary of weather forecast

Overall weather for seven days in cotton zone during next week will remain cooler than last week. **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. 37.84 °C, Min. 25.41 °C with R. humidity 55.78%) & forecast for the next week temp. Max. 43.18 °C, Min. 31.64°C with humidity 20.11%. 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. 37.84 °C, Min. 25.41 °C with R. humidity 55.78%) & forecast for the next week temp. Max. 43.18 °C, Min. 31.64°C with humidity 20.11%. 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. 37.84 °C, Min. 25.41 °C with R. humidity 55.78%) & forecast for the next week temp. Max. 43.18 °C, Min. 31.64°C with humidity 20.11%. 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. 37.84 °C, Min. 25.41 °C with R. humidity 55.78%) & forecast for the next week temp. Max. 43.18 °C, Min. 31.64°C with humidity 20.11%. Keeping in view above all, it is predicted that population of this pest will initiate 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. 37.84 °C,

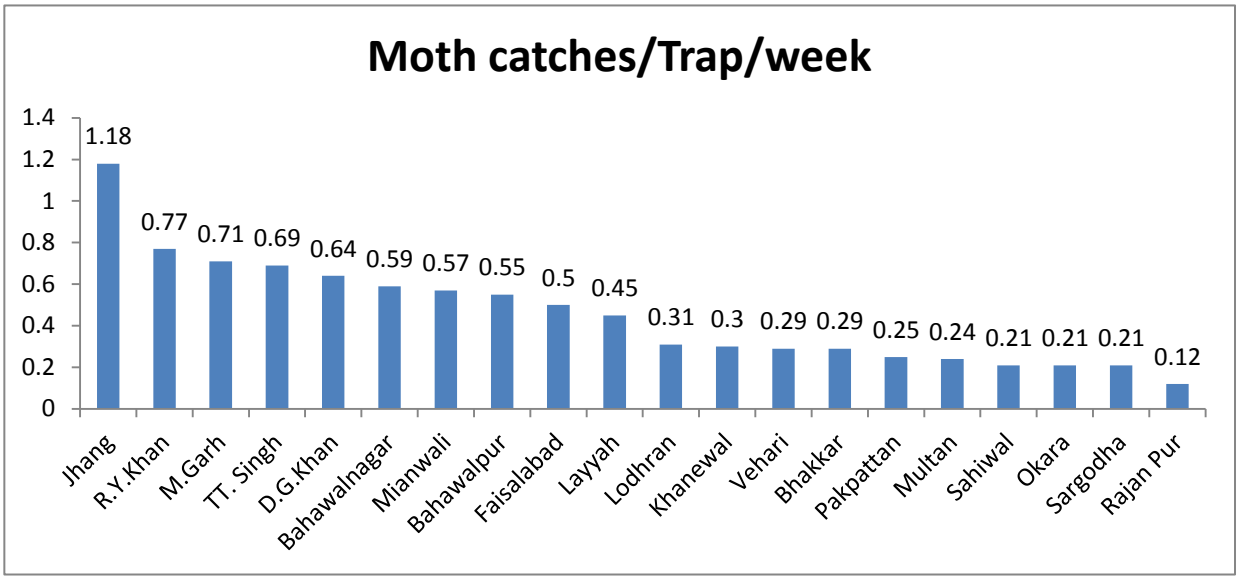
Min. 25.41 °C with R. humidity 55.78%) & forecast for the next week temp. Max. 43.18 °C, Min. 31.64°C with humidity 20.11%. Keeping in view above all, it is predicted that population of this pest will sustain as such during the coming week.

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. 37.84 °C, Min. 25.41 °C with R. humidity 55.78%) & forecast for the next week temp. Max. 43.18 °C, Min. 31.64°C with humidity 20.11%. Keeping in view above all, it is predicted that population of this pest may increase during the coming week.

Pink Bollworm: 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. 37.84 °C, Min. 25.41 °C with R. humidity 55.78%) & forecast for the next week temp. Max. 43.18 °C, Min. 31.64°C with humidity 20.11%. It is predicted that population of this pest will increase on cotton during the coming week.

Moth Catches in Pheromone Traps during 1st Week of June, 2020

Moth Catches in Pheromone Traps During 1st Week of June, 2020			
District	**Traps Installed**	**Moth catches/Trap/week**	**Av. Moth catches/Trap/night**
Multan	6	10	0.24
Khanewal	8	17	0.30
Vehari	6	12	0.29
Lodhran	6	13	0.31
Sahiwal	4	6	0.21
Pakpattan	4	7	0.25
Okara	4	6	0.21
Bahawalpur	8	31	0.55
Bahawalnagar	10	41	0.59
R.Y.Khan	8	43	0.77
D.G.Khan	4	18	0.64
M.Garh	8	40	0.71
Rajan Pur	6	5	0.12
Layyah	6	19	0.45
Sargodha	2	3	0.21
Mianwali	4	16	0.57
Bhakkar	8	16	0.29
Faisalabad	6	21	0.50
TT. Singh	6	29	0.69
Jhang	4	33	1.18
Note. 3 moth catches on 3 consecutive nights in a trap is considered as ETL			



American Bollworm: 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. 37.84 °C, Min. 25.41 °C with R. humidity 55.78%) & forecast for the next week temp. Max. 43.18 °C, Min. 31.64°C with humidity 20.11%. It is predicted that population of this pest will increase on non Bt varieties on cotton crop during the coming week.

Moth catches on light traps during 1st week of June, 2020

Moth Catches on Light Traps/Trap/week During 1st Week of June, 2020				
District	**Traps Installed**	**A.B.W**	**S.B.W**	**Armyworm**
Multan	3	9	0	15
Khanewal	4	12	0	26
Vehari	3	5	0	7
Lodhran	3	4	0	15
Sahiwal	2	6	5	9
Pakpattan	2	5	0	8
Okara	3	5	0	3
Bahawalpur	4	11	2	13
Bahawalnagar	5	14	2	16
R.Y.Khan	4	10	5	12
D.G.Khan	3	0	0	7
M.Garh	4	2	2	8
Rajan Pur	3	0	0	1
Layyah	3	0	0	2
Note. 3 moth catches of a pest on 3 consecutive nights in a trap is considered as ETL				

Spotted Bollworm: 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. 37.84 °C, Min. 25.41 °C with R. humidity 55.78%) & forecast for the next week temp. Max. 43.18 °C, Min. 31.64°C with humidity 20.11%. It is predicted that population of this pest will remain as such 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 37.84 °C, Min. 25.41 °C with R. humidity 55.78%) & forecast for the next week temp. Max. 43.18 °C, Min. 31.64°C with humidity 20.11%. 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.
4. Apply among the following recommended insecticide at ETL and repeat the spray with alternate insecticides if required;

Sr.No.	CHEMICAL NAME	DOSE (Per Acre)
1	Spirotetramate	125 ml
2	Pyriproxifen 10.8 EC	500 ml
3	Buprofezin	600 gm
4	Flunicamid 50 WG	60-80 gm
5	Diafenthuron	200 ml

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	Mulberry		
	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/card
4. Apply among the following recommended insecticide at ETL and repeat the spray with alternate insecticides if required;

Sr.No.	CHEMICAL NAME	DOSE (Per Acre)
1	Flunicamid 50 WG	60 gm
2	Fipronil+Imidacloprid	60 gm
3	Nitenpiram 10 AS	200 ml
4	Dinotefuron 20 SG	100 gm
5	Dimethoate 40 EC	330-400 ml
6	Thiacloprid 480 SC	200 ml

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. Apply among the following recommended insecticide at ETL and repeat the spray with alternate insecticides if required;

Sr.No.	CHEMICAL NAME	DOSE (Per Acre)
1	Fipronil+Imidacloprid	60 gm
2	Chlorfenpyr	125 ml

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 Pink Bollworm:

1. Use Sex Pheromone Traps for monitoring of PBW
2. Eradicate rosette flowers.
3. Apply among the following recommended insecticide at ETL and repeat the spray with alternate insecticides if required;

Sr.No.	CHEMICAL NAME	DOSE (Per Acre)
1	Spintoram 120 SC	80 ml
2	Chlorantraniliprole	50ml
3	Triazophos	1000ml
4	Bifenthrin	250ml
5	Gammacyhalothrin	100ml
6	Lambdacyhalothrin	333ml

9MANAGEMENT OF DUSKY COTTON BUG

1. Eradicate weeds.
2. Conduct Pest Scouting at least twice a week.
3. Remove alternate host plants
4. Apply among the following recommended insecticide at ETL and repeat the spray with alternate insecticides if required;

Sr.No.	CHEMICAL NAME	DOSE (Per Acre)
1	Imidacloprid	250gm
2	Acetamaprid	125 gm
3	Chlorpyrifos	800-1000ml

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.
5. Apply among the following recommended insecticide at ETL and repeat the spray with alternate insecticides if required;

Sr.No.	CHEMICAL NAME	DOSE (Per Acre)
1	Leufenuron	200ml
2	Flubendamide	50ml

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	On appearance
Aphid	Spray on visible damage on top terminals.
Dusky Cotton bug	10 per leaf/bud