

PEST SITUATION ON COTTON CROP IN PUNJAB DURING 4th WEEK OF SEPTEMBER, 2022

Whitefly: On overall Punjab basis 10.3 above ETL spots have been observed during current week as compared to 16.7% % in last week and 46.5% during the same corresponding period of last year. And 87.7% below ETL spots have been observed during current week as compared to 81.9% in last week and 53.1% during the same corresponding period of last year.

Tehsil wise percentage of hot spots of Whitefly

S. NO.	TEHSIL	%AGE	S.NO.	TEHSIL	%AGE
1	BAHAWAL PUR	51.9	25	LODHRAN	10.2
2	A.P.EAST	35.6	26	DARYA KHAN	9.1
3	YAZMAN	25.9	27	VEHARI	8.5
4	HASILPUR	24.0	28	KAROR L.E.	8.3
5	R.Y.KHAN	22.9	29	CHOBARA	8.3
6	HAROON ABAD	20.8	30	MULTAN	8.1
7	SADIQ ABAD	18.8	31	MANKERA	8.0
8	FORT ABBAS	17.8	32	ARIF WALA	7.4
9	KEHROR PACCA	17.1	33	KALLOR KOT	7.1
10	KHAN PUR	16.7	34	MAILSI	6.8
11	LIAQUAT PUR	16.7	35	BURE WALA	6.5
12	ALI PUR	16.0	36	MIAN CHANNU	6.1
13	CHISHTIAN	15.9	37	BHAKKAR	6.1
14	BAHAWAL NAGAR	15.6	38	TAUNSA	5.4
15	MINCHAN ABAD	15.0	39	KOT CHUTTA	5.0
16	MUZUFAR GARH	14.3	40	OKARA	4.5
17	CHICHA WATNI	12.5	41	JHANG	4.3
18	JATOI	12.5	42	D.G.KHAN	4.2
19	JALAL PUR P.W	12.5	43	A.P SIAL	2.9
20	MIANWALI	12.5	44	JAHANIAN	2.5
21	PIPLAN	12.5	45	DUYAPUR	2.4
22	ISA KHEL	12.5	46	KHANEWAL	2.1
23	LAYYAH	11.3	47	SHUJABAD	1.8
24	KOT ADDU	10.4			

Jassid: On overall Punjab basis 6.4% above ETL spots has been observed as compared to 7.8% in last week and same week of last year 5.7%. And 88.1% below ETL spots have been observed during current week as compared to 89.7% in last week and 88.3% during the same corresponding period of last year.

Tehsil wise percentage of hot spots of Jassid

S. NO.	TEHSIL	%AGE	S.NO.	TEHSIL	%AGE
1	PIR MAHAL	33.3	20	CHOBARA	10.4
2	CHICHA WATNI	30.0	21	CHISHTIAN	9.1
3	PAK PATTAN	30.0	22	DARYA KHAN	9.1
4	T.T.SINGH	26.2	23	RENALA KHURD	9.1
5	ARIF WALA	18.5	24	JATOI	8.3
6	KAROR L.E.	16.7	25	MANKERA	8.0
7	FORT ABBAS	15.6	26	MUZUFAR GARH	7.1
8	BHAKKAR	15.2	27	RAJAN PUR	7.1

9	KEHROR PACCA	14.6	28	SHORKOT	6.9
10	OKARA	13.6	29	DEPALPUR	6.7
11	LAYYAH	13.2	30	SHUJABAD	5.5
12	GOJRA	12.8	31	KHAN PUR	4.2
13	R.Y.KHAN	12.5	32	KOT ADDU	4.2
14	HAROON ABAD	12.5	33	TANDLIANWALA	4.2
15	BAHAWAL NAGAR	12.5	34	KALLOR KOT	3.6
16	MINCHAN ABAD	12.5	35	MAILSI	2.3
17	SAHIWAL	12.5	36	VEHARI	2.1
18	ALI PUR	12.0	37	SUMUNDRI	1.9
19	TAUNSA	10.7			

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. 0.2%. And 71.6% below ETL spots have been observed during current week as compared to 73.4% in last week and 79.0% during the same corresponding period of last year.

Tehsil wise percentage of hot spots of Thrips

No hot spot found in this week.

Mealy Bug: On overall Punjab basis 8.9% spots (all considered above ETL) of Mealy Bug have been observed as compared to 9.5% in last week and 44.7% spots during the same corresponding period of the last year.

Tehsil wise percentage of hot spots of Mealy bug

S. NO.	TEHSIL	%AGE	S.NO.	TEHSIL	%AGE
1	BAHAWAL PUR	44.4	23	MIAN CHANNU	8.2
2	YAZMAN	36.2	24	HASILPUR	8.0
3	JALAL PUR P.W	32.5	25	T.T.SINGH	7.1
4	A.P.EAST	28.8	26	R.Y.KHAN	6.3
5	SHUJABAD	25.5	27	MIANWALI	6.3
6	HAROON ABAD	25.0	28	PIPLAN	6.3
7	CHISHTIAN	22.7	29	18-HAZARI	6.3
8	MULTAN	22.6	30	LAYYAH	5.7
9	FORT ABBAS	22.2	31	GOJRA	5.1
10	PAK PATTAN	15.0	32	JAM PUR	5.0
11	ALI PUR	14.0	33	KEHROR PACCA	4.9
12	MINCHAN ABAD	12.5	34	KHAN PUR	4.2
13	ISA KHEL	12.5	35	KOT ADDU	4.2
14	MUZUFAR GARH	11.9	36	ARIF WALA	3.7
15	KAROR L.E.	10.4	37	KALLOR KOT	3.6
16	JATOI	10.4	38	BHAKKAR	3.0
17	SHORKOT	10.3	39	DUYAPUR	2.4
18	CHICHA WATNI	10.0	40	KABIR WALA	2.2
19	BAHAWAL NAGAR	9.4	41	CHOBARA	2.1
20	RAJAN PUR	8.9	42	D.G.KHAN	2.1
21	JHANG	8.7	43	LODHRAN	2.0
22	KOT CHUTTA	8.3			

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 2.3% below ETL spots have been observed

during current week as compared to 1.6% in last week and 2.3% during the same corresponding period of last year.

Tehsil wise percentage of hot spots of Mites

No hot spot found in this week.

Dusky Cotton Bug: On overall Punjab basis 8.0% above ETL spots have been observed during current week as compared to 5.0% in last week and 0.00% during the same corresponding period of last year. And 63.0% below ETL spots have been observed during current week as compared to 59.1% in last week and 52.9% during the same corresponding period of last year.

Tehsil wise percentage of hot spots of Dusky bug

S. NO.	TEHSIL	%AGE	S.NO.	TEHSIL	%AGE
1	BAHAWAL PUR	51.9	19	KHANEWAL	6.3
2	HASILPUR	48.0	20	MUZUFAR GARH	4.8
3	MULTAN	40.3	21	CHISHTIAN	4.5
4	PIR MAHAL	33.3	22	KHAN PUR	4.2
5	T.T.SINGH	31.0	23	KOT ADDU	4.2
6	JALAL PUR P.W	30.0	24	LIAQUAT PUR	4.2
7	SHUJABAD	29.1	25	BHAKKAR	3.0
8	PIPLAN	21.9	26	MINCHAN ABAD	2.5
9	KEHROR PACCA	17.1	27	JAHANIAN	2.5
10	MIAN CHANNU	16.3	28	MAILSI	2.3
11	GOJRA	15.4	29	FORT ABBAS	2.2
12	ISA KHEL	12.5	30	KABIR WALA	2.2
13	MIANWALI	9.4	31	BURE WALA	2.2
14	DUYAPUR	7.3	32	JATOI	2.1
15	KALLOR KOT	7.1	33	R.Y.KHAN	2.1
16	A.P.EAST	6.8	34	CHOBARA	2.1
17	VEHARI	6.4	35	LODHRAN	2.0
18	SADIQ ABAD	6.3			

Armyworm: On overall Punjab basis 2.6% spots (all considered above ETL) of Armyworm have been observed as compared to 4.6% in last week and 2.3% 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	BAHAWAL PUR	18.5	13	KHAN PUR	4.2
2	MIANWALI	9.4	14	JATOI	4.2
3	SHUJABAD	9.1	15	R.Y.KHAN	4.2
4	FORT ABBAS	8.9	16	PIPLAN	3.1
5	YAZMAN	8.6	17	BHAKKAR	3.0
6	A.P.EAST	8.5	18	DUYAPUR	2.4
7	KAROR L.E.	8.3	19	T.T.SINGH	2.4
8	LAYYAH	7.5	20	MUZUFAR GARH	2.4
9	KEHROR PACCA	7.3	21	KOT ADDU	2.1
10	JALAL PUR P.W	5.0	22	HASILPUR	2.0
11	CHICHA WATNI	5.0	23	TAUNSA	1.8
12	MULTAN	4.8			

Pink Boll Worm: On overall Punjab basis 20.7% above ETL spots have been observed as compared to 19.1% in last week and 28.2% same corresponding period of the last year. And 37.3% below ETL spots have been observed as compared to 34.6% in last week and 43.1% during same corresponding period of last year.

Tehsil wise percentage of hot spots of PBW

S. NO.	TEHSIL	%AGE	S.NO.	TEHSIL	%AGE
1	JALAL PUR P.W	60.0	28	KABIR WALA	17.8
2	BAHAWAL PUR	51.9	29	KAROR L.E.	16.7
3	SHUJABAD	50.9	30	KOT ADDU	16.7
4	HASILPUR	46.0	31	MIAN CHANNU	16.3
5	KEHROR PACCA	43.9	32	ALI PUR	16.0
6	DUYAPUR	43.9	33	MIANWALI	15.6
7	KHAN PUR	43.8	34	SAHIWAL	15.6
8	R.Y.KHAN	41.7	35	PAK PATTAN	15.0
9	SADIQ ABAD	39.6	36	ARIF WALA	14.8
10	LIAQUAT PUR	39.6	37	PIPLAN	12.5
11	KHANEWAL	37.5	38	ISA KHEL	12.5
12	MULTAN	37.1	39	MINCHAN ABAD	12.5
13	YAZMAN	31.0	40	RAJAN PUR	12.5
14	LODHRAN	30.6	41	JAM PUR	12.5
15	JAHANIAN	27.5	42	PIR MAHAL	11.1
16	MANKERA	24.0	43	KALLOR KOT	10.7
17	CHISHTIAN	22.7	44	VEHARI	10.6
18	BAHAWAL NAGAR	21.9	45	DARYA KHAN	9.1
19	BHAKKAR	21.2	46	RENALA KHURD	9.1
20	JATOI	20.8	47	BURE WALA	8.7
21	HAROON ABAD	20.8	48	D.G.KHAN	8.3
22	CHICHA WATNI	20.0	49	MAILSI	6.8
23	MUZUFAR GARH	19.0	50	T.T.SINGH	4.8
24	LAYYAH	18.9	51	OKARA	4.5
25	CHOBARA	18.8	52	JHANG	4.3
26	A.P.EAST	18.6	53	TAUNSA	3.6
27	FORT ABBAS	17.8	54	KOT CHUTTA	3.3

American Bollworm: On overall Punjab basis 0.00% above ETL spots have been observed as compared to 0.1 in last week and 0.1% during same corresponding period of last year. And 1.1% below ETL spots have been observed as compared to 1.8% in last week and 0.6% during same corresponding period of last year.

Tehsil wise percentage of hot spots of American Bollworm

No hot spot found in this week.

Spotted Bollworm: On overall Punjab basis 0.1% above ETL spots have been observed as compared to 0.2% in last week and 0.2% during same corresponding period of last year & 0.6% below ETL spots have been observed as compared to 1.2% in last week and 1.6% during same corresponding period of last year.

Tehsil wise percentage of hot spots of SBW

S. NO.	TEHSIL	%AGE	S.NO.	TEHSIL	%AGE
1	R.Y.KHAN	4.2	2	YAZMAN	1.7

CLCuV: On overall Punjab basis 29.0% spots (all considered above ETL) of CLCV have been observed as compared to 35.0% in last week and 29.9% during the same corresponding period of the last year.

Tehsil wise percentage of hot spots CLCuV

S. NO.	TEHSIL	%AGE	S.NO.	TEHSIL	%AGE
1	JALAL PUR P.W	95.0	31	TAUNSA	25.0
2	BHAKKAR	87.9	32	SADIQ ABAD	22.9
3	MULTAN	80.6	33	LAYYAH	22.6
4	HASILPUR	72.0	34	JATOI	20.8
5	MANKERA	60.0	35	A.P.EAST	20.3
6	BAHAWAL PUR	59.3	36	KHAN PUR	18.8
7	VEHARI	57.4	37	ARIF WALA	18.5
8	T.T.SINGH	54.8	38	RENALA KHURD	18.2
9	KABIR WALA	53.3	39	ALI PUR	18.0
10	KALLOR KOT	50.0	40	GOJRA	17.9
11	DARYA KHAN	50.0	41	RAJAN PUR	17.9
12	MAILSI	47.7	42	JAM PUR	17.5
13	SHUJABAD	47.3	43	KEHROR PACCA	17.1
14	BURE WALA	43.5	44	HAROON ABAD	16.7
15	R.Y.KHAN	37.5	45	MUZUFAR GARH	16.7
16	KHANEWAL	35.4	46	LODHRAN	16.3
17	PIR MAHAL	33.3	47	OKARA	13.6
18	CHICHA WATNI	32.5	48	KOT ADDU	10.4
19	PIPLAN	31.3	49	MINCHAN ABAD	10.0
20	PAK PATTAN	30.0	50	DUYAPUR	9.8
21	CHOBARA	29.2	51	BAHAWAL NAGAR	9.4
22	KOT CHUTTA	28.3	52	SAHIWAL	9.4
23	MIANWALI	28.1	53	A.P SIAL	8.8
24	D.G.KHAN	27.1	54	DEPALPUR	6.7
25	FORT ABBAS	26.7	55	LIAQUAT PUR	6.3
26	MIAN CHANNU	26.5	56	JHANG	4.3
27	JAHANIAN	25.0	57	SHORKOT	3.4
28	CHISHTIAN	25.0	58	TANDLIANWALA	2.1
29	KAROR L.E.	25.0	59	SUMUNDRI	1.9
30	ISA KHEL	25.0			

FORECAST FOR THE NEXT WEEK

Meteorological data of the current week 2021-2022

Districts	2022				2021			
	Temperature °C		R.H%	Rainfall (mm)	Temperature °C		RH%	Rainfall (mm)
	Max.	Min.			Max.	Min.		
Multan	36.6	24.4	60.2	0.0	35.0	26.7	63.3	36.5
Khanewal	36.9	25.3	59.9	0.0	35.0	25.8	69.4	4.0
Vehari	34.9	26.9	65.6	0.0	34.6	26.7	69.5	0.0
Lodhran	36.3	23.1	70.5	0.0	34.5	24.3	72.8	15.0
Sahiwal	33.8	23.2	76.5	6.0	33.0	25.0	80.0	31.0
Pakpattan	33.5	23.8	76.1	0.0	36.0	26.0	78.0	20.0
Okara	33.6	23.5	76.6	11.5	34.0	25.0	72.0	5.0
Bahawalpur	37.7	25.2	61.3	0.0	35.8	25.1	68.7	17.0
Bahawalnagar	37.6	25.4	67.8	0.0	38.8	25.7	58.0	0.0
R.Y.Khan	37.5	23.5	59.6	0.0	34.9	25.3	58.0	0.0
D.G. Khan	37.4	26.7	69.3	0.0	37.2	24.5	52.4	0.0
Muzaffar Garh	34.2	24.5	60.5	0.0	33.6	27.6	55.0	3.0
Rajanpur	38.8	28	61.3	0.0	40.5	29.9	55.5	0.0
Layyah	36.0	24.0	80.0	24.6	41.1	21.8	62.1	6.0
TOT/AVG	36.05	24.82	67.51	42.16	36.01	25.69	65.34	137.50

Weather forecast for next 7 day in cotton zone

Division	Dated	29/9	30/9	1/10	2/10	3/10	4/10	5/10
Multan	Max.Temp.	38	38	37	37	37	37	38
	Min.Temp.	24	24	25	25	23	22	24
	Humidity %	28	24	26	30	28	27	19
Sahiwal	Max.Temp.	37	37	37	37	38	38	38
	Min.Temp.	22	20	21	21	21	22	22
	Humidity %	30	25	26	25	25	28	18
Bahawalpur	Max.Temp.	38	38	38	37	37	37	37
	Min.Temp.	23	22	24	23	24	23	24
	Humidity %	28	26	28	30	30	29	20
D.G. Khan	Max.Temp.	38	38	38	38	37	37	37
	Min.Temp.	24	24	23	23	23	24	24
	Humidity %	28	28	22	26	30	28	29
Average Cotton Region	Max.Temp.	37.46						
	Min.Temp.	23						
	Humidity %	26.46						

Source: timeanddate.com

Summary of weather forecast

Overall weather for seven days in cotton zone during next week will remain moderate, sunny and humid.

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. 36.05 °C, Min. 24.82 °C with R. humidity 67.51%) & forecast for the next week temp. Max. 37.46 °C, Min. 23.00°C with humidity 26.46%. Keeping in view above all, it is predicted that population of this pest will decrease from this 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. 36.05 °C, Min. 24.82 °C with R. humidity 67.51%) & forecast for the next week temp. Max. 37.46 °C, Min. 23.00°C with humidity 26.46%. Keeping in view above all, it is predicted that population of this pest may sustain 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. 36.05 °C, Min. 24.82 °C with R. humidity 67.51%) & forecast for the next week temp. Max. 37.46 °C, Min. 23.00°C with humidity 26.46%. Keeping in view above all, it is predicted that population of this pest will sustain 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. 36.05 °C, Min. 24.82 °C with R. humidity 67.51%) & forecast for the next week temp. Max. 37.46 °C, Min. 23.00°C with humidity 26.46%. Keeping in view above all, it is predicted that population of this pest will sustain on cotton crop.

Mites: This pest flourishes best in dry climate with optimum temperature 28-40 °C with relative humidity above 40-50. The current weather conditions on overall Punjab basis (temp. Max. 36.05 °C, Min. 24.82 °C with R. humidity 67.51%) & forecast for the next week temp. Max. 37.46 °C, Min. 23.00°C with humidity 26.46%. Keeping in view above all, it is predicted that population of this pest will sustain during the coming week.

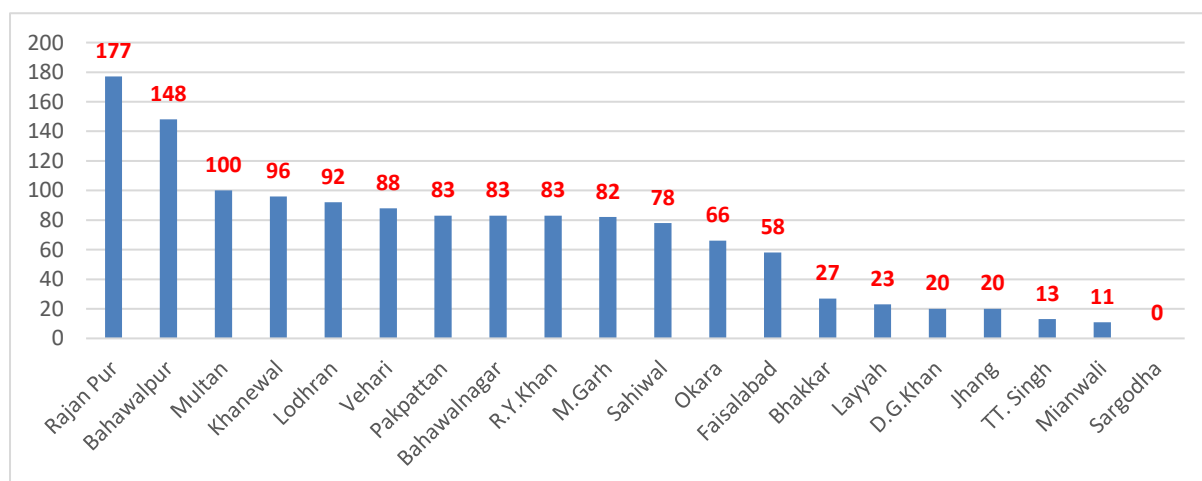
Dusky Cotton Bug: This pest flourishes best in moderate climate with optimum temperature 28-40 °C with relative humidity above 50-80%. The current weather conditions on overall Punjab basis (temp. Max. 36.05 °C, Min. 24.82 °C with R. humidity 67.51%) & forecast for the next week temp. Max. 37.46 °C, Min. 23.00°C with humidity 26.46%. Keeping in view above all, it is predicted that population of this pest can increase during 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. Max. 36.05 °C, Min. 24.82 °C with R. humidity 67.51%) & forecast for the next week temp. Max. 37.46 °C, Min. 23.00°C with humidity 26.46%. It is predicted that population of this pest will increase on cotton crop.

Moth Catches in Pheromone Traps during 4th Week of September, 2022

Moth Catches in Pheromone Traps During 4th Week of September 2022			
District	Traps Installed	Moth catches/Trap/week	Av. Moth catches/Trap/night
Multan	6	100	2.38
Khanewal	8	96	1.71
Vehari	6	88	2.10
Lodhran	6	92	2.19
Sahiwal	4	78	2.79
Pakpattan	4	83	2.96
Okara	4	66	2.36
Bahawalpur	8	148	2.64
Bahawalnagar	10	83	1.19
R.Y.Khan	8	83	1.48
D.G.Khan	6	20	0.48
M.Garh	8	82	1.46
Rajan Pur	6	177	4.21
Layyah	6	23	0.55
Sargodha	0	0	0.00
Mianwali	4	11	0.39
Bhakkar	8	27	0.48
Faisalabad	6	58	1.38
TT. Singh	6	13	0.31
Jhang	4	20	0.71

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. 36.05 °C, Min. 24.82 °C with R. humidity 67.51%) & forecast for the next week temp. Max. 37.46 °C, Min. 23.00°C with humidity 26.46%.

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

Moth catches on light traps during 4th week of September, 2022

Moth Catches on Light Traps/Trap/week During 4th Week of September, 2022				
District	Traps Installed	A.B.W	S.B.W	Armyworm
Multan	3	0.3	0.0	0.9
Khanewal	4	0.9	0.0	4.7
Vehari	3	0.0	0.0	1.0
Lodhran	3	0.6	0.0	3.6
Sahiwal	2	2.0	0.0	2.0
Pakpattan	2	1.7	0.0	1.9
Okara	3	1.7	0.0	1.9
Bahawalpur	4	0.9	0.6	2.6
Bahawalnagar	5	1.3	1.3	3.6
R.Y.Khan	4	1.9	1.7	2.9
D.G.Khan	3	1.1	1.3	1.6
M.Garh	4	0.6	0.6	0.9
Rajan Pur	3	1.1	0.9	1.6
Layyah	3	0.0	0.0	0.1
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. 36.05 °C, Min. 24.82 °C with R. humidity 67.51%) & forecast for the next week temp. Max. 37.46 °C, Min. 23.00°C with humidity 26.46%. Due to cultivation of more BT varieties, 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%. The current weather conditions on overall Punjab basis (temp. Max. 36.05 °C, Min. 24.82 °C with R. humidity 67.51%) & forecast for the next week temp. Max. 37.46 °C, Min. 23.00°C

with humidity 26.46%. Keeping in view above all, it is predicted that population of this pest will sustain during the coming week.

CLCuV: The incidence of this disease is expected to sustain on cotton crop to 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 (<i>Zizyphus</i>)	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 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	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 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
			Rattan jot
			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	0 (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 2 nd 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