

PEST SITUATION ON COTTON CROP IN PUNJAB DURING 1st WEEK OF SEPTEMBER, 2023

Whitefly: On overall Punjab basis 17.89% above ETL spots have been observed during current week as compared to 17.45% % in last week and 34.54% during the same corresponding period of last year. And 81.88% below ETL spots have been observed during current week as compared to 81.25% in last week and 64.70% 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	JAM PUR	58.8	33	KEHROR PACCA	13.4
2	KOT CHUTTA	54.6	34	DUYAPUR	12.9
3	ROJHAN	46.1	35	MAILSI	12.1
4	RAJAN PUR	45.1	36	KALLOR KOT	11.5
5	CHUNIAN	40.0	37	KHUSHAB	11.1
6	BAHAWAL PUR	33.0	38	MIANWALI	10.5
7	D.G.KHAN	32.9	39	DARYA KHAN	10.5
8	YAZMAN	32.2	40	PIPLAN	9.1
9	KHAN PUR	30.4	41	BHERA	8.3
10	HASILPUR	29.3	42	ISA KHEL	8.3
11	R.Y.KHAN	28.0	43	MANKERA	8.0
12	ALI PUR	26.9	44	QUIDABAD	7.7
13	A.P.EAST	26.5	45	MIAN CHANNU	6.8
14	SADIQ ABAD	25.9	46	KHANEWAL	6.8
15	TAUNSA	25.7	47	VEHARI	6.6
16	QASUR	25.0	48	SAHIWAL	5.4
17	JALAL PUR P.W	24.1	49	A.P SIAL	5.4
18	FORT ABBAS	24.1	50	18-HAZARI	5.3
19	LIAQUAT PUR	23.4	51	PAK PATTAN	5.2
20	HAROON ABAD	23.2	52	PIR MAHAL	4.8
21	CHISHTIAN	23.2	53	KABIR WALA	4.7
22	BAHAWAL NAGAR	21.2	54	BHAKKAR	4.7
23	SHUJABAD	20.9	55	JAHANIAN	4.2
24	JATOI	20.6	56	JHANG	4.1
25	MUZUFAR GARH	18.8	57	GOJRA	3.7
26	MULTAN	18.4	58	BURE WALA	3.1
27	CHOBARA	16.5	59	CHICHA WATNI	3.0
28	LAYYAH	16.0	60	SHORKOT	2.8
29	KOT ADDU	15.6	61	FAISALABAD	2.4
30	KAROR L.E.	15.6	62	SUMUNDRI	1.9
31	MINCHAN ABAD	15.0	63	T.T.SINGH	1.4
32	LODHRAN	14.6			

Jassid: On overall Punjab basis 3.04% above ETL spots have been observed as compared to 4.55% in last week and same week of last year 15.62% and 96.05% below ETL spots have been observed during current week as compared to 93.27% in last week and 82.98% 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	SHAHPUR	100.0	28	CHOBARA	3.9
2	QASUR	25.0	29	CHICHA WATNI	3.8
3	KOT RADHA KISHAN	25.0	30	JAM PUR	3.8
4	CHUNIAN	20.0	31	LAYYAH	3.5
5	KOTMOMIN	20.0	32	PAK PATTAN	3.4

6	HASILPUR	14.1	33	A.P.SIAL	3.2
7	KHUSHAB	11.1	34	ARIF WALA	3.2
8	SAHIWAL	11.1	35	SUMUNDRI	2.8
9	MINCHAN ABAD	9.0	36	KAROR L.E.	2.6
10	CHISHTIAN	8.9	37	LODHRAN	2.5
11	BAHAWAL PUR	8.7	38	KOT ADDU	2.5
12	BHERA	8.3	39	BURE WALA	2.5
13	ISA KHEL	8.3	40	PIR MAHAL	2.4
14	DEPALPUR	7.7	41	ROJHAN	2.3
15	ALI PUR	6.9	42	KABIR WALA	2.3
16	TAUNSA	6.4	43	RENALA KHURD	2.1
17	FORT ABBAS	6.3	44	JHANG	2.0
18	HARON ABAD	6.3	45	JALAL PUR P.W	1.7
19	KEHROR PACCA	6.3	46	MAILSI	1.7
20	KALLOR KOT	5.8	47	LIAQUAT PUR	1.6
21	TANDLIANWALA	5.7	48	SHUJABAD	0.9
22	SAHIWAL	5.4	49	KHAN PUR	0.9
23	18-HAZARI	5.3	50	A.P.EAST	0.9
24	BAHAWAL NAGAR	5.1	51	R.Y.KHAN	0.8
25	VEHARI	5.0	52	DUYAPUR	0.8
26	D.G.KHAN	4.5	53	JATOI	0.6
27	T.T.SINGH	4.3			

Thrips: On overall Punjab basis 0.29% above ETL spots have been observed as compared to 1.08% in last week and same week of last year i.e. 0.61%. And 93.66% below ETL spots have been observed during current week as compared to 93.84% in last week and 82.94% during the same corresponding period of last year.

Tehsil wise percentage of hot spots of Thrips

S. NO.	TEHSIL	%AGE	S.NO.	TEHSIL	%AGE
1	PIPLAN	4.5	7	KHAN PUR	0.9
2	LAYYAH	3.0	8	R.Y.KHAN	0.8
3	BHAKKAR	2.3	9	LIAQUAT PUR	0.8
4	TAUNSA	1.4	10	CHOBARA	0.8
5	KAROR L.E.	1.3	11	ALI PUR	0.6
6	KOT ADDU	1.3			

Mealy Bug: On overall Punjab basis 9.70% spots (all considered above ETL) of Mealy Bug have been observed as compared to 7.20% in last week and 11.82% 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	YAZMAN	26.4	30	KABIR WALA	7.0
2	BAHAWAL PUR	25.2	31	LAYYAH	6.9
3	KOT CHUTTA	25.0	32	KOT ADDU	6.3
4	A.P.EAST	23.0	33	CHISHTIAN	6.3
5	R.Y.KHAN	22.9	34	DARYA KHAN	5.3
6	KHAN PUR	22.3	35	SAHIWAL	4.8
7	RAJAN PUR	20.1	36	PIPLAN	4.5
8	ALI PUR	19.4	37	MAILSI	4.3
9	D.G.KHAN	17.4	38	VEHARI	4.1
10	JAM PUR	16.9	39	DEPALPUR	3.8
11	TAUNSA	16.4	40	KHANEWAL	3.8
12	SHUJABAD	16.4	41	GOJRA	3.7
13	SADIQ ABAD	16.1	42	T.T.SINGH	3.5
14	HASILPUR	15.2	43	MIANWALI	3.5
15	JALAL PUR P.W	14.7	44	PAK PATTAN	3.4
16	LIAQUAT PUR	14.5	45	KEHROR PACCA	2.7
17	ROJHAN	14.1	46	CHICHA WATNI	2.3

18	DUYAPUR	13.7	47	A.P SIAL	2.2
19	JATOI	12.5	48	RENALA KHURD	2.1
20	LODHRAN	11.5	49	MINCHAN ABAD	2.0
21	MUZUFAR GARH	11.3	50	OKARA	2.0
22	SAHIWAL	11.1	51	SUMUNDRI	1.9
23	BAHAWAL NAGAR	11.1	52	SHORKOT	1.8
24	MIAN CHANNU	11.1	53	PIR MAHAL	1.2
25	FORT ABBAS	8.9	54	JHANG	1.0
26	MULTAN	8.8	55	TANDLIANWALA	1.0
27	HAROON ABAD	8.0	56	JAHANIAN	0.8
28	CHOBARA	7.9	57	BURE WALA	0.6
29	KAROR L.E.	7.8			

Mites: On overall Punjab basis 0.01% above ETL spots has 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 4.96% below ETL spots have been observed during current week as compared to 3.88% in last week and 1.82% during the same corresponding period of last year.

Tehsil wise percentage of hot spots of mites

S. NO.	TEHSIL	%AGE
1	A.P.EAST	0.9

Dusky Cotton Bug: On overall Punjab basis 0.84% above ETL spots have been observed during current week as compared to 0.32% in last week and 2.36% during the same corresponding period of last year. And 50.17% below ETL spots have been observed during current week as compared to 41.29% in last week and 55.55% during the same corresponding period of last year.

Tehsil wise percentage of hot spots of dusky cotton bug

S. NO.	TEHSIL	%AGE	S.NO.	TEHSIL	%AGE
1	HASILPUR	12.0	9	HAROON ABAD	1.8
2	BAHAWAL PUR	10.7	10	JALAL PUR P.W	1.7
3	YAZMAN	5.8	11	MAILSI	1.7
4	SHUJABAD	4.5	12	LODHRAN	1.3
5	A.P.EAST	4.4	13	JAHANIAN	0.8
6	MULTAN	2.6	14	T.T.SINGH	0.7
7	VEHARI	2.5	15	BURE WALA	0.6
8	FORT ABBAS	1.8			

Armyworm: On overall Punjab basis 1.26% spots (all considered above ETL) of Armyworm have been observed as compared to 0.72% in last week and 9.31% 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	17.5	12	SHUJABAD	0.9
2	A.P.EAST	13.3	13	KHAN PUR	0.9
3	YAZMAN	9.9	14	SADIQ ABAD	0.9
4	HASILPUR	5.4	15	CHISHTIAN	0.9
5	LODHRAN	4.5	16	MULTAN	0.9

6	HAROON ABAD	3.6	17	JALAL PUR P.W	0.9
7	R.Y.KHAN	3.4	18	LIAQUAT PUR	0.8
8	D.G.KHAN	3.2	19	ALI PUR	0.6
9	DUYAPUR	1.6	20	JAM PUR	0.6
10	ROJHAN	1.6	21	KOT ADDU	0.6
11	JATOI	1.3	22	RAJAN PUR	0.6

Pink Boll Worm: On overall Punjab basis 7.53% above ETL spots have been observed as compared to 6.30% in last week and 10.79% same corresponding period of the last year. And 35.54% below ETL spots have been observed as compared to 29.77% in last week and 25.87% during same corresponding period of last year.

Tehsil wise percentage of hot spots of pink boll worm

S. NO.	TEHSIL	%AGE	S.NO.	TEHSIL	%AGE
1	BAHAWAL PUR	26.2	25	LIAQUAT PUR	8.1
2	A.P.EAST	21.2	26	MAILSI	7.8
3	HASILPUR	20.7	27	CHICHA WATNI	7.6
4	YAZMAN	19.8	28	VEHARI	7.4
5	ALI PUR	16.3	29	LAYYAH	7.4
6	BAHAWAL NAGAR	14.1	30	KEHROR PACCA	7.1
7	FORT ABBAS	13.4	31	MINCHAN ABAD	7.0
8	SHUJABAD	12.7	32	KAROR L.E.	6.5
9	R.Y.KHAN	12.7	33	OKARA	6.0
10	HAROON ABAD	12.5	34	MIAN CHANNU	5.1
11	KHAN PUR	12.5	35	BURE WALA	5.0
12	SADIQ ABAD	11.6	36	SAHIWAL	4.8
13	DUYAPUR	11.3	37	ROJHAN	4.7
14	JATOI	11.3	38	JAM PUR	4.4
15	JALAL PUR P.W	11.2	39	RAJAN PUR	4.3
16	MUZUFAR GARH	10.0	40	PAK PATTAN	3.4
17	CHISHTIAN	9.8	41	ARIF WALA	3.2
18	LODHRAN	9.6	42	KOT CHUTTA	2.6
19	CHOBARA	9.4	43	PIR MAHAL	2.4
20	KOT ADDU	9.4	44	KABIR WALA	2.3
21	JAHANIAN	9.3	45	RENALA KHURD	2.1
22	D.G.KHAN	9.0	46	TAUNSA	1.4
23	MULTAN	8.8	47	MIANWALI	0.9
24	KHANEWAL	8.3			

American Boll Worm: On overall Punjab basis 0.00% above ETL spots have been observed as compared to 0.01% in last week and 0.11% during same corresponding period of last year. And 0.69% below ETL spots have been observed as compared to 0.64% in last week and 1.44% during same corresponding period of last year.

Spotted Boll Worm: On overall Punjab basis 0.00% above ETL spots have been observed as compared to 0.01% in last week and 0.3% during same corresponding period of last year & 0.51% below ETL spots have been observed as compared to 0.48% in last week and 0.84% during same corresponding period of last year.

CLCuV: On overall Punjab basis 2.91% spots (all considered above ETL) of CLCV have been observed as compared to 3.11% in last week and 40.27% during the same corresponding period of the last year.

Tehsil wise percentage of hot spots of CLCuV

S. NO.	TEHSIL	%AGE	S.NO.	TEHSIL	%AGE
1	SAHIWAL	22.2	19	KALLOR KOT	3.8
2	BAHAWAL PUR	18.4	20	JATOI	3.1
3	ALI PUR	15.6	21	A.P.EAST	2.7
4	TAUNSA	11.4	22	KOT CHUTTA	2.6
5	KHUSHAB	11.1	23	KOT ADDU	2.5
6	MUZUFAR GARH	10.6	24	BURE WALA	2.5
7	R.Y.KHAN	9.3	25	YAZMAN	2.5
8	ISA KHEL	8.3	26	BHAKKAR	2.3
9	MAILSI	7.8	27	JHANG	2.0
10	VEHARI	7.4	28	SHUJABAD	1.8
11	CHOBARA	7.1	29	KHAN PUR	1.8
12	KABIR WALA	6.2	30	JALAL PUR P.W	1.7
13	SADIQ ABAD	5.4	31	LIAQUAT PUR	1.6
14	MIANWALI	5.3	32	KHANEWAL	1.5
15	KAROR L.E.	5.2	33	LAYYAH	1.3
16	D.G.KHAN	5.2	34	BAHAWAL NAGAR	1.0
17	PIPLAN	4.5	35	MULTAN	0.9
18	MANKERA	4.0	36	LODHRAN	0.6

FORECAST FOR THE NEXT WEEK

Meteorological data of the current week 2022-2023

Districts	2023				2022			
	Temperature °C		R.H%	Rainfall (mm)	Temperature °C		RH%	Rainfall (mm)
	Max.	Min.			Max.	Min.		
Multan	37.2	29.1	72.5	0.0	38.0	27.1	67.6	0.0
Khanewal	37.9	26.6	46.1	0.0	36.7	26.9	71.1	0.4
Vehari	36.3	26.9	54.9	0.0	35.9	25.9	62.3	0.0
Lodhran	36.9	26.0	64.7	0.0	35.4	24.6	78.7	1.3
Sahiwal	36.8	26.8	72.4	0.0	36.9	28.0	70.5	14.0
Pakpattan	36.1	26.0	71.9	0.0	36.2	28.2	69.6	4.0
Okara	36.5	26.6	72.5	0.0	36.0	28.4	70.2	6.0
Bahawalpur	38.1	26.4	59.4	0.0	37.5	51.9	66.3	0.0
Bahawalnagar	38.0	26.8	48.3	0.0	36.5	26.1	61.7	0.0
R.Y.Khan	40.3	26.1	57.3	0.0	35.1	25.6	67.0	0.0
D.G. Khan	36.1	28.6	59.3	0.0	35.7	27.9	64.3	0.0
M. Garh	39.0	26.3	46.0	0.0	32.3	21.4	78.0	3.0
Rajanpur	38.6	27.0	54.4	4.0	33.2	22.6	74.1	0.0
Layyah	37.0	22.0	50.0	4.0	34.0	23.0	88.0	0.0
AVERAGE	37.48	26.51	59.25	8	35.67	27.68	70.67	29

Weather forecast for next 7 day in cotton zone

Division	Dated	10/9	11/9	12/9	13/9	14/9	15/9	16/9
Multan	Max.Temp.	43	43	42	43	42	41	37
	Min.Temp.	29	27	28	28	29	29	28
	Humidity %	19	23	22	24	31	32	20
Sahiwal	Max.Temp.	42	41	42	42	42	41	37
	Min.Temp.	27	27	27	27	29	28	28
	Humidity %	22	29	26	24	29	32	21
Bahawalpur	Max.Temp.	44	42	42	42	40	40	37
	Min.Temp.	29	28	29	28	27	28	25
	Humidity %	16	20	21	28	33	31	21
D.G. Khan	Max.Temp.	43	42	43	44	43	42	37
	Min.Temp.	28	26	26	27	29	29	28
	Humidity %	20	25	21	21	27	29	21
Average Cotton Region	Max.Temp.	27						
	Min.Temp.	27.79						
	Humidity %	24.57						

Source: timeanddate.com

Summary of weather forecast

Overall weather for seven days in cotton zone during next week will remain hot, sunny & Shiny.

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. 37.48 °C, Min. 26.51°C with R. humidity 59.25%) & forecast for the next week temp. Max. 37.00°C, Min. 27.79°C with humidity 24.57%. 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. 37.48 °C, Min. 26.51°C with R. humidity 59.25%) & forecast for the next week temp.

Max. 37.00°C, Min. 27.79°C with humidity 24.57%. Keeping in view above all, it is predicted that population of this pest will 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. 37.48 °C, Min. 26.51°C with R. humidity 59.25%) & forecast for the next week temp. Max. 37.00°C, Min. 27.79°C with humidity 24.57%. 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. 37.48 °C, Min. 26.51°C with R. humidity 59.25%) & forecast for the next week temp. Max. 37.00°C, Min. 27.79°C with humidity 24.57%. Keeping in view above all, it is predicted that population of this pest will increase 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. 37.48 °C, Min. 26.51°C with R. humidity 59.25%) & forecast for the next week temp. Max. 37.00°C, Min. 27.79°C with humidity 24.57%. Keeping in view above all, it is predicted that population of this pest will sustain as such during the coming week.

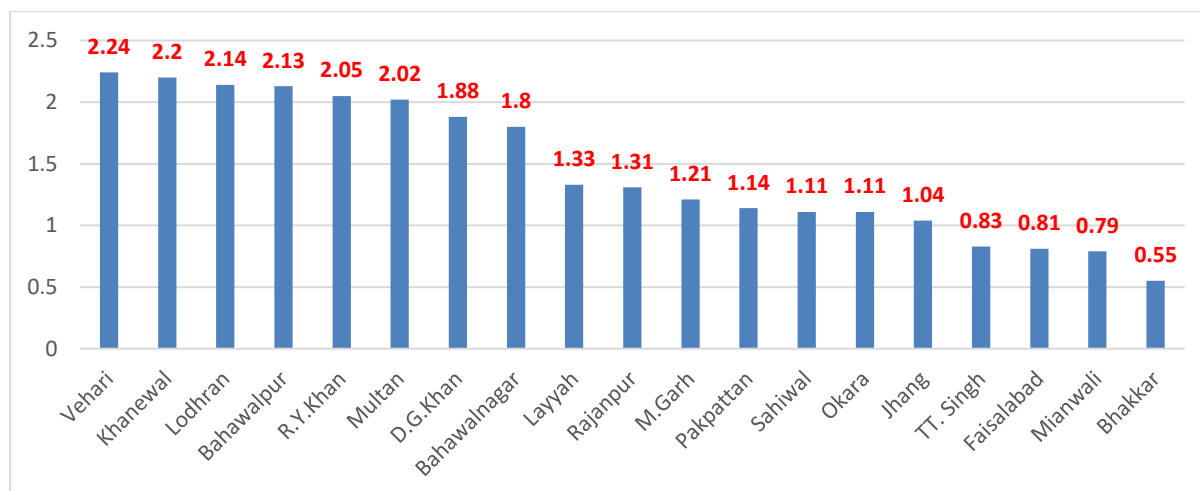
Dusky Cotton Bug: This pest flourishes best in moderate climate with optimum temperature 28-40 °C with relative humidity above 50-80%. The current weather conditions on overall Punjab basis (temp. Max. 37.48 °C, Min. 26.51°C with R. humidity 59.25%) & forecast for the next week temp. Max. 37.00°C, Min. 27.79°C

with humidity 24.57%. In view above all, it is predicted that population of this pest may sustain 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. Max. 37.48 °C, Min. 26.51°C with R. humidity 59.25%) & forecast for the next week temp. Max. 37.00°C, Min. 27.79°C with humidity 24.57%. 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 September, 2023

Moth Catches in Pheromone Traps During 1st Week of September, 2023			
District	Traps Installed	Moth catches/Trap/week	Av. Moth catches/Trap/night
Multan	6	85	2.02
Khanewal	8	123	2.20
Vehari	6	94	2.24
Lodhran	6	90	2.14
Sahiwal	4	31	1.11
Pakpattan	4	32	1.14
Okara	4	31	1.11
Bahawalpur	8	119	2.13
Bahawalnagar	10	126	1.80
R.Y.Khan	8	115	2.05
D.G.Khan	6	79	1.88
Rajanpur	6	55	1.31
M.Garh	8	68	1.21
Layyah	6	56	1.33
Bhakkar	8	31	0.55
Mianwali	6	33	0.79
Faisalabad	6	34	0.81
TT. Singh	6	35	0.83
Jhang	4	29	1.04
<i>Note. 3 moth catches on 3 consecutive nights in a trap is considered as ETL</i>			



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. 37.48 °C, Min. 26.51°C with R. humidity 59.25%) & forecast for the next week temp. Max. 37.00°C, Min. 27.79°C with humidity 24.57%. It is predicted that population of this pest will remain sustain on cotton crop during the coming week.

Moth catches on light traps during 1st week of September, 2023

Moth Catches on Light Traps/Trap/night During 1st Week of September, 2023				
District	Traps Installed	A.B.W	S.B.W	Armyworm
Multan	3	0.0	0.0	3.0
Khanewal	4	1.6	0.0	6.0
Vehari	3	1.4	0.6	2.6
Lodhran	3	2.3	0.0	4.4
Sahiwal	2	0.3	0.0	1.1
Pakpattan	2	0.3	0.0	0.9
Okara	3	0.4	0.0	1.4
Bahawalpur	4	1.6	1.7	3.9
Bahawalnagar	5	1.3	0.9	3.1
R.Y.Khan	4	2.3	2.6	2.3
D.G.Khan	3	1.1	0.7	2.4
M.Garh	4	0.4	0.7	2.3
Rajan Pur	3	0.4	0.4	1.9
Layyah	3	0.1	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. The current weather conditions on overall Punjab basis (temp. Max. 37.48 °C, Min. 26.51°C with R. humidity 59.25%) & forecast for the next week temp. Max. 37.00°C, Min. 27.79°C with humidity 24.57%. 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. 37.48 °C, Min. 26.51°C with R. humidity 59.25%) & forecast for the next week temp. Max. 37.00°C, Min. 27.79°C with humidity 24.57%. 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 as such on cotton crop during 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, kangji booti, aksin etc.
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. Avoid water stress to the plants.
5. Avoid repeated visits of workers from infested fields to healthy fields.

6. Apply the localized chemical spray on infected along with its 2 meter surrounding area.

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. Keep the special observation/ pest scouting when the boll opening starts.
2. Use of soft contact poison on the above ETL.

MANAGEMENT OF ARMY WORM

1. Keep the fields clean from weeds especially Its it which is a preferred host of armyworm.
2. Observe the field on regular basis and under close observation to assess its attack and treat the patch at earliest if necessary.
3. Avoid sowing of Jantar near cotton fields.
4. Regular pest scouting at least twice a week.
5. Hand picking and destruction of egg masses at initial stage as initially its attack starts in patches and is clearly visible.

CLCuV MANAGEMENT

1. Use CLCuV tolerant varieties for sowing.
2. Keep Cotton fields free from all kinds of weeds.

3. Eradicate other alternate host plants of CLCuV and dispose them off carefully.
4. Thinning out and destruction of Virus affected plants.
5. Remove CLCuV affected plants in less than 60 DAS (Days after sowing) crop.
6. Hoeing after each irrigation or rain at watter condition till canopies permit.
7. 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.
8. Irrigate the fields when needed keeping in view weather conditions e.g. temperature, rainfall, soil water holding capacity and plant need.
9. Balanced use of Fertilizer i.e. N.P.K. along with foliar growth promoters if necessary.
10. Keep transmission vector (whitefly) at the low ebb

Alternate host plants of CLCuV vector (whitefly)

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