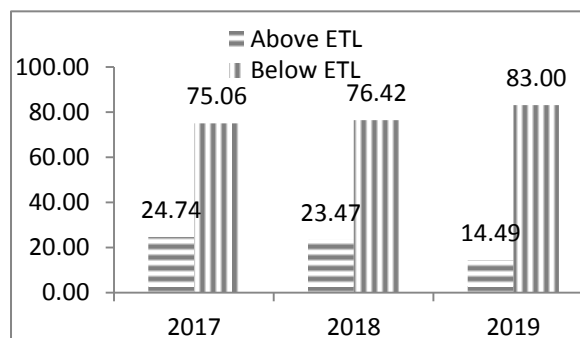


PEST SITUATION ON COTTON CROP IN PUNJAB DURING 3RD WEEK OF AUGUST, 2019

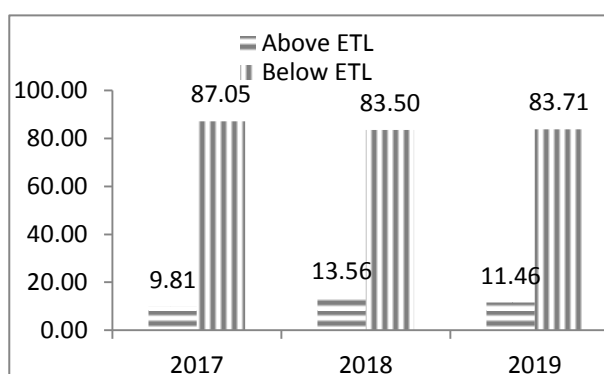
Whitefly: On overall Punjab basis 14.49% above ETL spots have been observed during current week as compared to 17.68% in last week and 23.47% during the same corresponding period of last year. And 83.00% below ETL spots have been observed during current week as compared to 79.02% in last week and 76.42% 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	SILLANWALI/ SAHIWAL	50.0	31	ROJHAN	15.0
2	D.G.KHAN	34.4	32	SADIQ ABAD	14.9
3	RENALA KHURD	33.3	33	MANKERA	14.3
4	BAHAWAL PUR	27.8	34	A.P.EAST	14.0
5	SHUJABAD	26.9	35	RAJAN PUR	13.5
6	KALLOR KOT	26.9	36	YAZMAN	12.7
7	FORT ABBAS	26.7	37	SAHIWAL	12.5
8	HASILPUR	25.0	38	TAUNSA	12.5
9	JAM PUR	25.0	39	PIPLAN	11.1
10	BAHAWAL NAGAR	24.0	40	SUMUNDRI	10.5
11	LODHRAN	23.8	41	DUYAPUR	10.4
12	BHAKKAR	23.5	42	BURE WALA	10.0
13	MULTAN	22.9	43	ALI PUR	10.0
14	MAILSI	22.9	44	LAYYAH	10.0
15	HARROON ABAD	22.5	45	DEPALPUR	8.0
16	KEHROR PACCA	21.6	46	KAROR L.E.	8.0
17	OKARA	21.1	47	VEHARI	7.5
18	ISA KHEL	21.1	48	JATOI	6.7
19	MIAN CHANNU	20.7	49	MIANWALI	6.7
20	PAK PATTAN	20.0	50	18-HAZARI	6.3
21	CHISHTIAN	20.0	51	CHOBARA	6.0
22	LIAQUAT PUR	20.0	52	GOJRA	5.7
23	KHAN PUR	19.6	53	MUZUFAR GARH	3.1
24	KHANEWAL	18.8	54	SHORKOT	3.1
25	KOT CHUTTA	18.8	55	A.P.SIAL	3.0
26	MINCHAN ABAD	17.9	56	TANGLIANWALA	2.7
27	JALAL PUR P.W	16.2	57	CHICHA WATNI	2.7
28	JAHANIAN	15.6	58	T.T.SINGH	2.7
29	KABIR WALA	15.6	59	KOT ADDU	2.5
30	R.Y.KHAN	15.2			

Jassid: On overall Punjab basis 11.46% above ETL spots has been observed as compared to 11.67% in last week and same week of last year 13.56%. And 83.71% below ETL spots have been observed during current week as compared to 82.00% in last week and 83.50% during the same corresponding

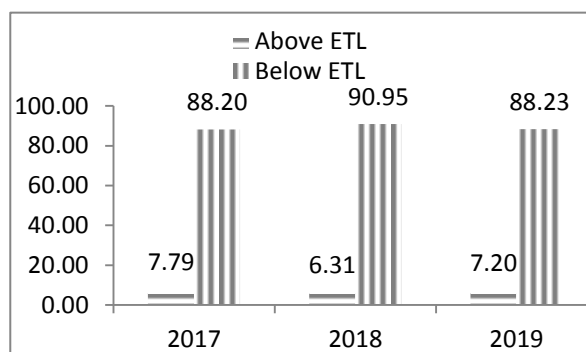


period of last year.

Tehsil wise percentage of hot spots of jassid

S. NO.	TEHSIL	%AGE	S.NO.	TEHSIL	%AGE
1	CHISHTIAN	40.0	30	TAUNSA	10.0
2	RENALA KHURD	33.3	31	LAYYAH	10.0
3	SILLANWALI/SAHIWAL	33.3	32	ARIF WALA	9.7
4	MANKERA	28.6	33	MUZUFAR GARH	9.4
5	HASILPUR	26.8	34	GOJRA	8.6
6	FORT ABBAS	26.7	35	JHANG	8.3
7	OKARA	26.3	36	CHICHA WATNI	8.1
8	BAHAWAL NAGAR	26.0	37	RAJAN PUR	8.1
9	LIAQUAT PUR	22.0	38	CHOBARA	8.0
10	DEPALPUR	20.0	39	ROJHAN	7.5
11	KOT ADDU	20.0	40	MIAN CHANNU	6.9
12	MINCHAN ABAD	17.9	41	JATOI	6.7
13	KHAN PUR	17.6	42	D.G.KHAN	6.3
14	BAHAWAL PUR	16.7	43	SHORKOT	6.3
15	ISA KHEL	15.8	44	KAROR L.E.	6.0
16	SAHIWAL	15.6	45	MULTAN	5.7
17	KALLOR KOT	15.4	46	SUMUNDRI	5.3
18	R.Y.KHAN	15.2	47	ALI PUR	5.0
19	PAK PATTAN	15.0	48	JAM PUR	4.2
20	HAROON ABAD	15.0	49	SHUJABAD	3.8
21	SADIQ ABAD	14.9	50	KHANEWAL	3.1
22	PIPLAN	14.8	51	JAHANIAN	3.1
23	BHAKKAR	14.7	52	KABIR WALA	3.1
24	YAZMAN	14.3	53	PEER MEHAL	3.1
25	A.P.EAST	14.0	54	A.P.SIAL	3.0
26	MIANWALI	13.3	55	TANDLIANWALA	2.7
27	KOT CHUTTA	12.5	56	BURE WALA	2.5
28	JALAL PUR P.W	10.8	57	KEHROR PACCA	2.0
29	T.T.SINGH	10.8			

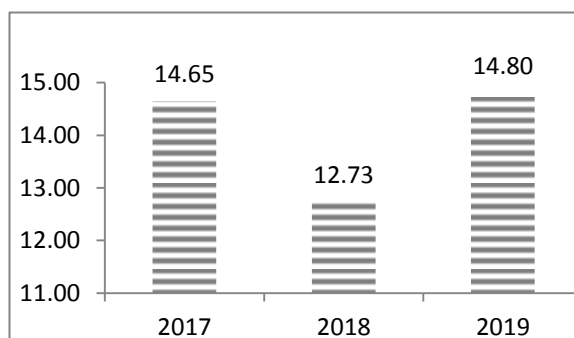
Thrips: On overall Punjab basis 7.20% above ETL spots have been observed as compared to 6.97% in last week and same week of last year i.e. 6.31%. And 88.23% below ETL spots have been observed during current week as compared to 85.15% in last week and 90.95% during the same corresponding period of last year.



Tehsil wise percentage of hot spots of Thrips

S. NO.	TEHSIL	%AGE	S.NO.	TEHSIL	%AGE
1	MULTAN	28.6	19	MIANWALI	10.0
2	SHUJABAD	26.9	20	ALI PUR	7.5
3	FORT ABBAS	22.2	21	ROJHAN	7.5
4	DUYAPUR	20.8	22	PIPLAN	7.4
5	KHAN PUR	19.6	23	MUZUFAR GARH	6.3
6	SADIQ ABAD	19.1	24	A.P.SIAL	6.1
7	A.P.EAST	17.5	25	LIAQUAT PUR	6.0
8	R.Y.KHAN	17.4	26	ISA KHEL	5.3
9	BAHAWAL PUR	14.8	27	MINCHAN ABAD	5.1
10	LODHRAN	14.3	28	MANKERA	4.8
11	BAHAWAL NAGAR	14.0	29	JAM PUR	4.2
12	KEHROR PACCA	13.7	30	CHOBARA	4.0
13	JALAL PUR P.W	13.5	31	JAHANIAN	3.1
14	JATOI	13.3	32	KABIR WALA	3.1
15	HASILPUR	12.5	33	D.G.KHAN	3.1
16	HAROON ABAD	12.5	34	KOT CHUTTA	3.1
17	TAUNSA	12.5	35	RAJAN PUR	2.7
18	CHISHTIAN	10.0	36	TANDLIANWALA	1.4

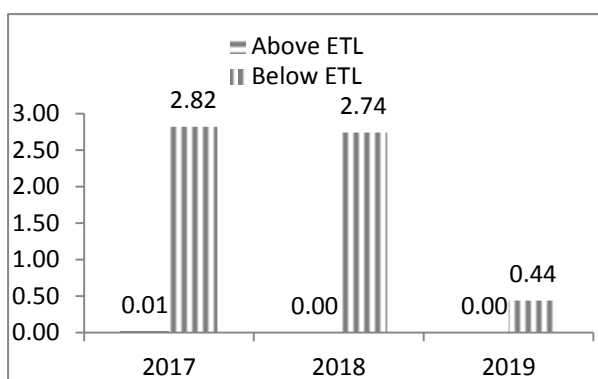
Mealy Bug: On overall Punjab basis 14.80% spots (all considered above ETL) of Mealy Bug have been observed as compared to 11.26% in last week and 12.73% spots during the same corresponding period of the last year.



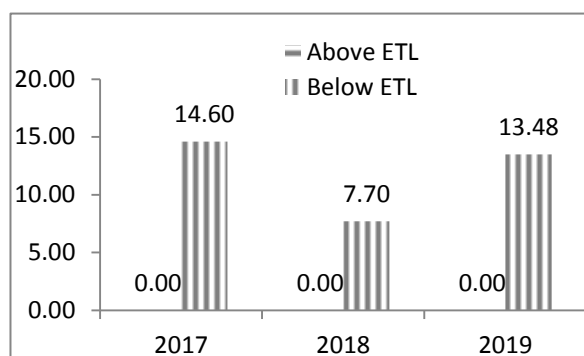
Tehsil wise percentage of hot spots of mealy bug

S. NO.	TEHSIL	%AGE	S.NO.	TEHSIL	%AGE
1	HASILPUR	58.9	27	GOJRA	11.4
2	JALAL PUR P.W	54.1	28	MIAN CHANNU	10.3
3	MULTAN	42.9	29	VEHARI	10.0
4	BAHAWAL PUR	42.6	30	BAHAWAL NAGAR	10.0
5	CHISHTIAN	38.0	31	LIAQUAT PUR	10.0
6	RAJAN PUR	35.1	32	YAZMAN	9.5
7	SHUJABAD	30.8	33	MUZUFAR GARH	9.4
8	KHAN PUR	29.4	34	BURE WALA	7.5
9	R.Y.KHAN	28.3	35	TAUNSA	7.5
10	A.P.EAST	28.1	36	ARIF WALA	6.5
11	ALI PUR	22.5	37	SAHIWAL	6.3
12	KOT CHUTTA	21.9	38	PEER MEHAL	6.3
13	LODHRAN	21.4	39	BHAKKAR	5.9
14	SADIQ ABAD	21.3	40	CHICHA WATNI	5.4
15	JAM PUR	20.8	41	ISA KHEL	5.3
16	KOT ADDU	20.0	42	MINCHAN ABAD	5.1
17	JATOI	20.0	43	HAROON ABAD	5.0
18	T.T.SINGH	16.2	44	FORT ABBAS	4.4
19	KABIR WALA	15.6	45	JHANG	4.2
20	D.G.KHAN	15.6	46	CHOBARA	4.0
21	PAK PATTAN	15.0	47	KAROR L.E.	4.0
22	MAILSI	14.3	48	MIANWALI	3.3
23	JAHANIAN	12.5	49	KHANEWAL	3.1
24	DUYAPUR	12.5	50	TANDLIANWALA	2.7
25	ROJHAN	12.5	51	LAYYAH	2.5
26	KEHROR PACCA	11.8			

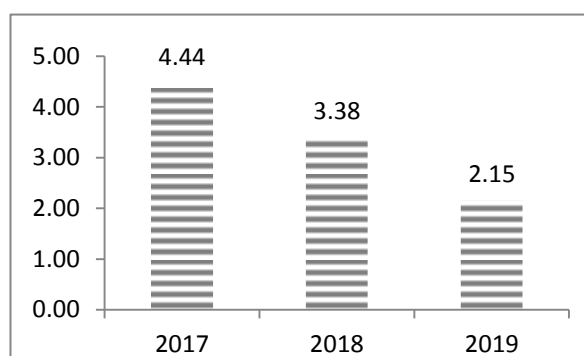
Mites: On overall Punjab basis 0.00% above ETL spots have been observed during current week as compared to 0.03% in last week and 0.00% during the same corresponding period of last year. And 0.44% below ETL spots have been observed during current week as compared to 0.26% in last week and 2.74% during the same corresponding period of last year.



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 13.48% below ETL spots have been observed during current week as compared to 7.09% in last week and 7.75% during the same corresponding period of last year.



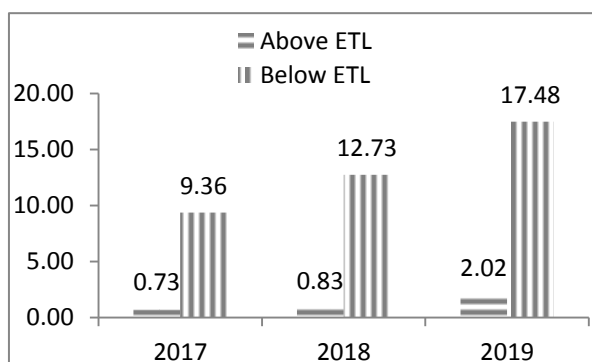
Armyworm: On overall Punjab basis 2.15% spots (all considered above ETL) of Armyworm have been observed as compared to 2.28% in last week and 3.38% spots during the same corresponding period of the last year.



Tehsil wise percentage of hot spots of army worm

S. NO.	TEHSIL	%AGE	S.NO.	TEHSIL	%AGE
1	KOT ADDU	12.5	14	BAHAWAL NAGAR	4.0
2	RENALA KHURD	11.1	15	CHISHTIAN	4.0
3	OKARA	10.5	16	LIAQUAT PUR	4.0
4	MIAN CHANNU	10.3	17	HASILPUR	3.6
5	R.Y.KHAN	8.7	18	A.P.EAST	3.5
6	DEPALPUR	8.0	19	KABIR WALA	3.1
7	KHANEWAL	6.3	20	D.G.KHAN	3.1
8	PEER MEHAL	6.3	21	GOJRA	2.9
9	KAROR L.E.	6.0	22	RAJAN PUR	2.7
10	KHAN PUR	5.9	23	TAUNSA	2.5
11	ALI PUR	5.0	24	FORT ABBAS	2.2
12	SADIQ ABAD	4.3	25	BAHAWAL PUR	1.9
13	JAM PUR	4.2			

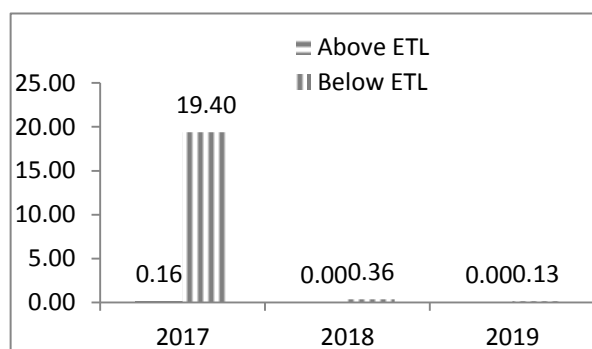
Pink Boll Worm: On overall Punjab basis 2.02% above ETL spots have been observed as compared to 0.99% in last week and 0.83% same corresponding period of the last year. And 17.48% below ETL spots have been observed as compared to 12.34% in last week and 12.73% during same corresponding period of last year.



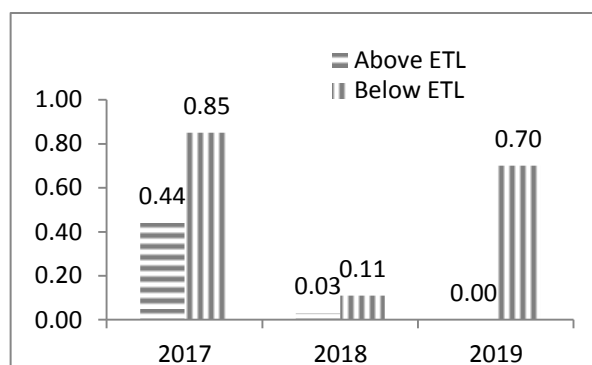
Tehsil wise percentage of hot spots of Pink Bollworm

S. NO.	TEHSIL	%AGE	S.NO.	TEHSIL	%AGE
1	CHISHTIAN	16.0	13	DEPALPUR	4.0
2	VEHARI	12.5	14	BAHAWAL NAGAR	4.0
3	RENALA KHURD	11.1	15	KHANEWAL	3.1
4	OKARA	10.5	16	KABIR WALA	3.1
5	MIAN CHANNU	10.3	17	BHAKKAR	2.9
6	CHICHA WATNI	8.1	18	MAILSI	2.9
7	ARIF WALA	6.5	19	MINCHAN ABAD	2.6
8	SAHIWAL	6.3	20	FORT ABBAS	2.2
9	T.T.SINGH	5.4	21	R.Y.KHAN	2.2
10	HASILPUR	5.4	22	BAHAWAL PUR	1.9
11	BURE WALA	5.0	23	YAZMAN	1.6
12	PAK PATTAN	5.0			

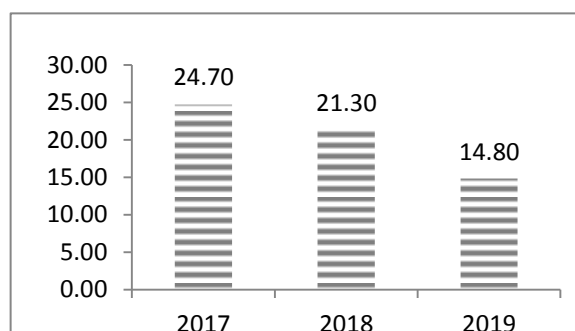
American Bollworm: On overall Punjab basis 0.00% above ETL spots have been observed as compared to 0.03% in last week and 0.00% during same corresponding period of last year. And 0.13% below ETL spots have been observed as compared to 0.03% in last week and 0.36% during same corresponding period of last year.



Spotted Bollworm: On overall Punjab basis 0.00% above ETL spots have been observed as compared to 0.00% in last week and 0.03% during same corresponding period of last year & 0.70% below ETL spots have been observed as compared to 0.06% in last week and 0.11% during same corresponding period of last year.



CLCuV: On overall Punjab basis 14.80% spots (all considered above ETL) of CLCV have been observed as compared to 12.20% in last week and 21.26% during the same corresponding period of the last year.



Tehsil wise percentage of hot spots of CLCv

S. NO.	TEHSIL	%AGE	S.NO.	TEHSIL	%AGE
1	KOT ADDU	85.0	25	JAHANIAN	12.5
2	MULTAN	74.3	26	KABIR WALA	12.5
3	JALAL PUR P.W	59.5	27	BURE WALA	12.5
4	SHUJABAD	53.8	28	SAHIWAL	12.5
5	JATOI	40.0	29	TAUNSA	12.5
6	BHAKKAR	32.4	30	RAJAN PUR	10.8
7	VEHARI	30.0	31	SADIQ ABAD	10.6
8	JAM PUR	29.2	32	ARIF WALA	9.7
9	MAILSI	28.6	33	DUYAPUR	8.3
10	D.G.KHAN	28.1	34	BAHAWAL NAGAR	8.0
11	MUZUFAR GARH	28.1	35	LAYYAH	7.5
12	R.Y.KHAN	23.9	36	ROJHAN	7.5
13	HASILPUR	23.2	37	FORT ABBAS	6.7
14	KHAN PUR	21.6	38	MIANWALI	6.7
15	LODHRAN	21.4	39	KAROR L.E.	6.0
16	MIAN CHANNU	20.7	40	GOJRA	5.7
17	KOT CHUTTA	18.8	41	PAK PATTAN	5.0
18	BAHAWAL PUR	18.5	42	SHORKOT	3.1
19	LIAQUAT PUR	18.0	43	18-HAZARI	3.1
20	CHISHTIAN	16.0	44	PEER MEHAL	3.1
21	KEHROR PACCA	15.7	45	CHICHA WATNI	2.7
22	KHANEWAL	15.6	46	T.T.SINGH	2.7
23	ALI PUR	15.0	47	MINCHAN ABAD	2.6
24	MANKERA	14.3	48	CHOBARA	2.0

FORECAST FOR THE NEXT WEEK

Meteorological data of the current week 2019-2018

Districts	2019				2018			
	Temperature °C		R.H%	Rainfall (mm)	Temperature °C		RH%	Rainfall (mm)
	Max.	Min.			Max.	Min.		
Multan	35.60	28.60	68.10	0.00	36.50	29.20	78.40	2.00
Khanewal	35.71	27.00	62.86	0.00	38.60	28.70	56.00	0.00
Vehari	34.50	27.25	70.75	6.00	34.90	25.70	59.60	22.00
Lodhran	36.29	28.14	61.86	0.00	33.10	23.00	69.40	5.00
Sahiwal	35.78	24.18	70.13	20.00	34.40	26.10	63.93	0.00
Pakpattan	37.50	26.50	68.00	8.00	33.00	26.75	67.00	0.00
Okara	36.50	28.00	72.00	0.00	38.50	27.50	76.00	0.00
Bahawalpur	37.84	27.60	63.70	30.70	38.34	28.76	67.30	41.60
Bahawalnagar	38.10	26.75	60.25	4.00	38.60	27.40	58.30	0.00
R.Y.Khan	37.83	27.61	76.00	0.00	39.33	28.00	79.33	0.00
D.G.Khan	39.86	29.57	69.93	21.00	41.14	32.00	51.64	Drizzling
M.Garh	35.77	29.92	69.75	0.00	38.75	29.77	71.50	13.00
Rajanpur	39.42	29.35	66.00	8.00	39.10	29.12	44.50	158.00
Layyah	35.00	24.75	47.75	0.00	42.50	29.75	40.50	0.00
TOT/AVG	36.84	27.52	66.22	97.70	37.63	27.98	63.10	241.60

Weather forecast for next 7 day in cotton zone

Division	Dated	21/8	22/8	23/8	24/8	25/8	26/8	27/8
Multan	Max.Temp.	41	42	41	41	42	44	39
	Min.Temp.	30	31	29	30	31	30	31
	Humidity %	25	27	26	26	22	22	14
Sahiwal	Max.Temp.	40	40	40	40	40	42	36
	Min.Temp.	27	26	27	28	28	28	29
	Humidity %	33	32	30	30	30	28	24
Bahawalpur	Max.Temp.	40	41	41	41	41	42	39
	Min.Temp.	29	30	29	30	29	29	28
	Humidity %	29	28	29	28	25	26	18
D.G. Khan	Max.Temp.	42	43	43	43	44	44	39
	Min.Temp.	30	31	31	31	31	30	32
	Humidity %	24	23	23	22	19	22	15
Average Cotton Region	Max.Temp.	41.11						
	Min.Temp.	29.46						
	Humidity %	25.00						

Source: timeanddate.com

Summary of weather forecast

Overall weather for seven days in cotton zone during next week will remain moderate to hot and temperature may increase than previous week up to one degree Celsius.

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. 36.84°C, Min. 27.52°C with R. humidity 66.22%) & forecast for the next week temp. Max. 41.11°C, Min. 29.46°C with humidity 25.00%. Keeping in view the temperature for current week and weather forecast of next week, it is predicted that population of this pest will decrease during the coming week as the temperature will no longer remain favorable for the development of this pest.

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. 36.84°C, Min. 27.52°C with R. humidity 66.22%) & forecast for the next week temp. Max. 41.11°C, Min. 29.46°C with humidity 25.00%. Keeping in view above all, it is predicted that population of this pest will decrease during the coming week as the

temperature and rains will remain conducive for its rapid growth. The reason for more attack in the same week of last year is due to the timely sowing of crop.

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. 36.84°C, Min. 27.52°C with R. humidity 66.22%) & forecast for the next week temp. Max. 41.11°C, Min. 29.46°C with humidity 25.00%. Keeping in view above all, it is predicted that population of this pest will decrease 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. 36.84°C, Min. 27.52°C with R. humidity 66.22%) & forecast for the next week temp. Max. 41.11°C, Min. 29.46°C with humidity 25.00%. 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 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. 36.84°C, Min. 27.52°C with R. humidity 66.22%) & forecast for the next week temp. Max. 41.11°C, Min. 29.46°C with humidity 25.00%. Keeping in view above all, it is predicted that population of this pest will remain on lower ebb during the coming week pertaining to hot and humid weather and rains.

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. 36.84°C, Min. 27.52°C with R. humidity 66.22%) & forecast for the next week temp. Max. 41.11°C, Min. 29.46°C with humidity 25.00%. Keeping in view above all, it is predicted that population of this pest will 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 (Max temp. 36.84°C, Min. 27.52°C with R. humidity 66.22%) & forecast for the next week temp. Max. 41.11°C, Min. 29.46°C with humidity 25.00%. It is

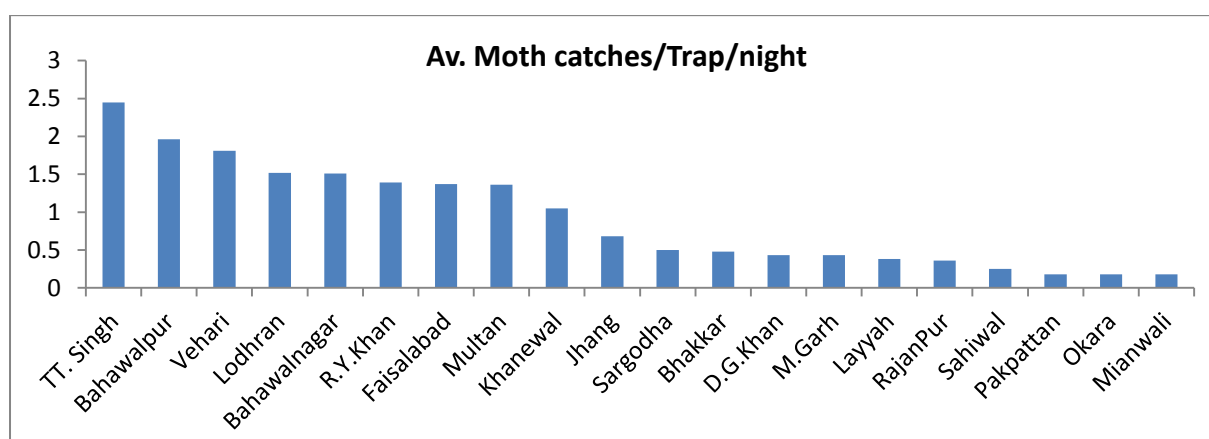
predicted that population of this pest will increase on cotton during the coming week as expected temperature range is favorable for the development of this pest. Moreover its increase in population than last year is due to:

- There was ban by imposing section 144 on early cotton last year. This practice was not exercised this year so as to promote grow more cotton campaign.
- The early sown cotton provide host for the suicidal generation of PBW moths and also become nursery of this pest and potential danger for the seasonal cotton.

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

Moth Catches in Pheromone Traps During 3 rd Week of August, 2019			
District	Traps Installed	Av. Moth catches/Trap/night	Av. No. of Moths other than PBW/ Trap/Night
Multan	6	1.36	0.0
Khanewal	8	1.05	0.00
Vehari	6	1.81	0.00
Lodhran	6	1.52	0.38
Sahiwal	4	0.25	0.00
Pakpattan	4	0.18	0.00
Okara	4	0.18	0.00
Bahawalpur	8	1.96	0.07
Bahawalnagar	10	1.51	0.17
R.Y.Khan	8	1.39	0.21
D.G.Khan	4	0.43	0.00
M.Garh	8	0.43	0.00
RajanPur	6	0.36	0.00
Layyah	6	0.38	0.00
Sargodha	2	0.50	0.00
Mianwali	4	0.18	0.00
Bhakkar	8	0.48	0.00
Faisalabad	5	1.37	0.00
TT. Singh	6	2.45	0.00
Jhang	4	0.68	0.00

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. 36.84°C, Min. 27.52°C with R. humidity 66.22%) & forecast for the next week temp. Max. 41.11°C, Min. 29.46°C with humidity 25.00%. Due to cultivation of more BT varieties, it is predicted that population of this pest will remain on low ebb on cotton crop in the coming week.

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

Moth Catches on Light Traps/Trap/week During 3 rd Week of August, 2019				
District	Traps Installed	A.B.W	S.B.W	Armyworm
Multan	3	0	0	12
Khanewal	4	0	0	16
Vehari	3	0	0	13
Lodhran	3	5	2	7
Sahiwal	2	2	0	5
Pakpattan	2	2	0	5
Okara	3	3	0	5
Bahawalpur	4	2	0	9
Bahawalnagar	5	10	3	17
R.Y.Khan	4	6	6	7
D.G.Khan	3	0	0	0
M.Garh	4	1	0	8
RajanPur	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: 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. 36.84°C, Min. 27.52°C with R. humidity 66.22%) & forecast for the next week temp. Max. 41.11°C, Min. 29.46°C with humidity 25.00%. Due to cultivation of more BT varieties, it is predicted that above ETL population of this pest will remain minimum 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 36.84°C, Min. 27.52°C with R. humidity 66.22%) & forecast for the next week temp. Max. 41.11°C, Min. 29.46°C with humidity 25.00%. Keeping in view above all, it is predicted that population of this pest will decrease during the coming week.

CLCuV: CLCUV spots increased from last week and decreased from same week of last year on cotton crop. The incidence of this disease is expected to increase on cotton crop in next week due to increase in its potential vector i.e. whitefly.

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;
 - Spirotetramate 125 ml+ Biopower 250 ml per Acre
 - Pyriproxifen 400 ml per Acre
 - Buprofezin 600 gm per Acre
 - Flonicamid 80 gm per Acre
 - Diafenthuron 200 ml per Acre

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

- Flonicamid 60 gm per Acre
- Fipronil+Imidacloprid 60 gm per Acre
- Nitenpiram 200ml per Acre

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;
 - Fipronil+Imidacloprid 60 gm per Acre
 - Chlorfenpyr 125 ml per Acre

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 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;
 - Spintoram 120SC @ 80 ml per Acre
 - Chlorantraniliprole@50ml per Acre
 - Triazophos@1000ml per Acre
 - Bifenthrin @250ml per Acre
 - Gammacyhalothrin@100ml per Acre
 - Lambdacyhalothrin@333ml per Acre

MANAGEMENT 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;
 - Imidacloprid 250gm per Acre
 - Acetamaprid 125 gm per Acre
 - Chlorpyrifos 800-1000ml per Acre

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;
 - Leufenuron 200ml per Acre
 - Flubendamide 50ml per Acre

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