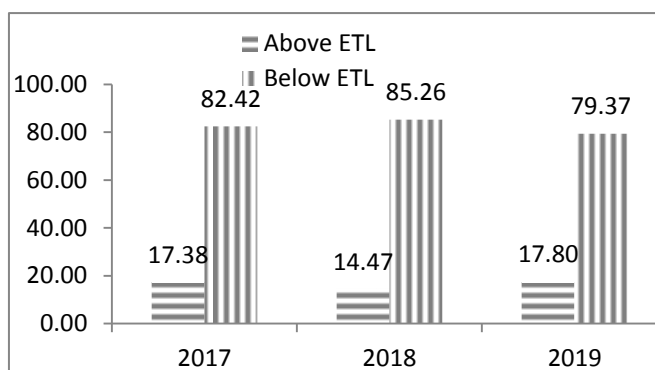


PEST SITUATION ON COTTON CROP IN PUNJAB DURING 1ST WEEK OF AUGUST, 2019

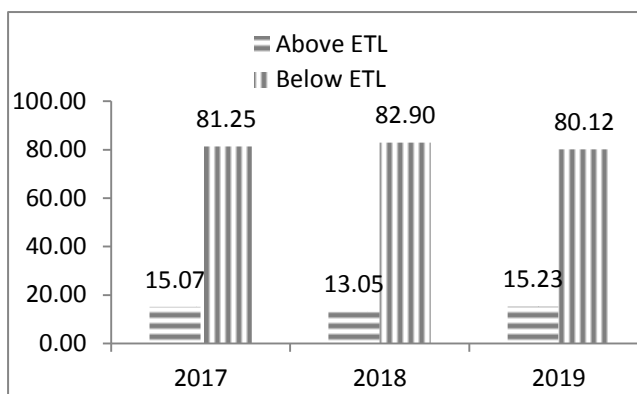
Whitefly: On overall Punjab basis 17.80% above ETL spots have been observed during current week as compared to 15.47% % in last week and 14.47% during the same corresponding period of last year. And 79.37% below ETL spots have been observed during current week as compared to 79.16% in last week and 85.26% 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	HASILPUR	60.7	31	DUYAPUR	17.3
2	CHISHTIAN	52.0	32	ISA KHEL	17.1
3	JALAL PUR P.W	50.0	33	R.Y.KHAN	17.0
4	BAHAWAL PUR	50.0	34	VEHARI	16.2
5	OKARA	38.9	35	MIANWALI	15.0
6	MAILSI	38.1	36	ARIF WALA	13.2
7	PAK PATTAN	30.4	37	SADIQ ABAD	12.5
8	BAHAWAL NAGAR	30.0	38	JATOI	12.5
9	KEHROR PACCA	27.8	39	JAHANIAN	11.4
10	SILLANWALI/ SAHIWAL	27.3	40	KABIR WALA	10.6
11	BURE WALA	26.2	41	T.T.SINGH	9.4
12	BHAKKAR	25.7	42	KOT CHUTTA	8.3
13	SHUJABAD	25.6	43	ALI PUR	8.3
14	A.P.EAST	25.0	44	MIAN CHANNU	8.1
15	JAM PUR	25.0	45	CHICHA WATNI	8.0
16	MANKERA	25.0	46	LAYYAH	8.0
17	LODHRAN	24.0	47	PIPLAN	7.7
18	MULTAN	22.6	48	KHANEWAL	7.3
19	HAROON ABAD	22.5	49	KALLOR KOT	7.1
20	DEPALPUR	22.2	50	CHOBARA	6.0
21	KHAN PUR	22.2	51	SUMUNDRI	5.3
22	LIAQUAT PUR	22.0	52	A.P.SIAL	4.9
23	RAJAN PUR	21.7	53	SHORKOT	4.8
24	RENALA KHURD	20.0	54	TAUNSA	4.0
25	YAZMAN	20.0	55	KAROR L.E.	4.0
26	MINCHAN ABAD	19.5	56	JHANG	4.0
27	SAHIWAL	17.9	57	GOJRA	3.0
28	ROJHAN	17.9	58	TANDLIANWALA	2.9
29	FORT ABBAS	17.5	59	D.G.KHAN	2.9
30	PEER MEHAL	17.4	60	KOT ADDU	2.5

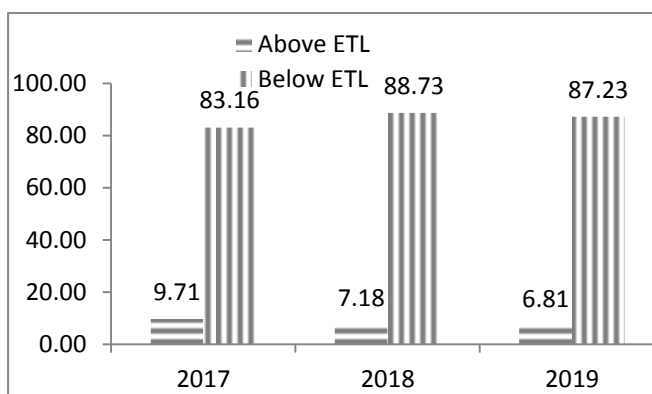
Jassid: On overall Punjab basis 15.23% above ETL spots has been observed as compared to 14.47% in last week and same week of last year 13.05%. And 80.12% below ETL spots have been observed during current week as compared to 77.04% in last week and 82.90% during the same corresponding period of last year.



Tehsil wise percentage of hot spots of jassid

S. NO.	TEHSIL	%AGE	S.NO.	TEHSIL	%AGE
1	HASILPUR	51.8	33	D.G.KHAN	11.4
2	CHISHTIAN	50.0	34	PIPLAN	10.3
3	MANKERA	40.0	35	LAYYAH	10.0
4	RENALA KHURD	33.3	36	CHOBARA	10.0
5	BAHAWAL PUR	32.4	37	KAROR L.E.	10.0
6	BAHAWAL NAGAR	28.0	38	MIANWALI	10.0
7	SHUJABAD	27.9	39	KHANEWAL	9.8
8	OKARA	27.8	40	MULTAN	9.4
9	PAK PATTAN	26.086957	41	18-HAZARI	9.4
10	BHAKKAR	25.7	42	FAISAL ABAD	9.1
11	R.Y.KHAN	25.5	43	PEER MEHAL	8.7
12	FORT ABBAS	25.0	44	KABIR WALA	8.5
13	MINCHAN ABAD	24.4	45	MIAN CHANNU	8.1
14	A.P.EAST	23.3	46	TAUNSA	8.0
15	LIAQUAT PUR	22.0	47	JHANG	8.0
16	KALLOR KOT	21.4	48	A.P.SIAL	7.3
17	CHICHA WATNI	20.0	49	BURE WALA	7.1
18	SADIQ ABAD	20.0	50	ROJHAN	7.1
19	KOT ADDU	20.0	51	JAHANIAN	6.8
20	ISA KHEL	20.0	52	JATOI	6.3
21	JAM PUR	18.75	53	MUZUFAR GARH	6.1
22	KHAN PUR	18.5	54	GOJRA	6.1
23	SILLANWALI/ SAHIWAL	18.2	55	VEHARI	5.4
24	SAHIWAL	17.9	56	TANDLIANWALA	4.9
25	HAROON ABAD	17.5	57	MAILSI	4.8
26	SUMUNDRI	15.8	58	SHORKOT	4.8
27	T.T.SINGH	15.6	59	LODHRAN	4.0
28	DEPALPUR	14.8	60	KEHROR PACCA	3.7
29	YAZMAN	14.5	61	KOT CHUTTA	2.8
30	DUYAPUR	13.5	62	ARIF WALA	2.6
31	JALAL PUR P.W	13.3	63	RAJAN PUR	2.2
32	ALI PUR	12.5			

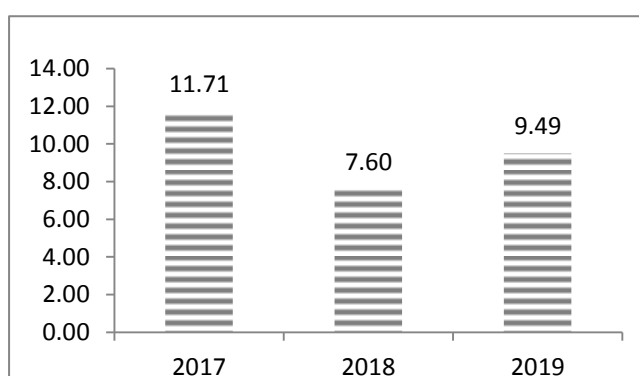
Thrips: On overall Punjab basis 6.81% above ETL spots have been observed as compared to 5.34% in last week and same week of last year i.e. 7.18%. And 87.23% below ETL spots have been observed during current week as compared to 82.88% in last week and 88.73% during the same corresponding period of last year.



Tehsil wise percentage of hot spots of thrips

S. NO.	TEHSIL	%AGE	S.NO.	TEHSIL	%AGE
1	HASILPUR	26.8	21	MIANWALI	7.5
2	KEHROR PACCA	24.1	22	KHANEWAL	7.3
3	LODHRAN	22.0	23	MINCHAN ABAD	7.3
4	BAHAWAL PUR	20.3	24	R.Y.KHAN	6.4
5	RAJAN PUR	19.6	25	JATOI	6.3
6	DUYAPUR	19.2	26	MUZUFAR GARH	6.1
7	MULTAN	17.0	27	BAHAWAL NAGAR	6.0
8	MAILSI	16.7	28	LIAQUAT PUR	6.0
9	KOT ADDU	15.0	29	TAUNSA	6.0
10	SHUJABAD	14.0	30	KOT CHUTTA	5.6
11	HAROON ABAD	12.5	31	FORT ABBAS	5.0
12	JAM PUR	12.5	32	ALI PUR	4.2
13	ROJHAN	12.5	33	A.P.EAST	3.3
14	JALAL PUR P.W	10.0	34	D.G.KHAN	2.9
15	SADIQ ABAD	10.0	35	ISA KHEL	2.9
16	MANKERA	10.0	36	MIAN CHANNU	2.7
17	KHAN PUR	9.3	37	A.P.SIAL	2.4
18	PAK PATTAN	8.7	38	JAHANIAN	2.3
19	KABIR WALA	8.5	39	CHOBARA	2.0
20	CHISHTIAN	8.0	40	KAROR L.E.	2.0

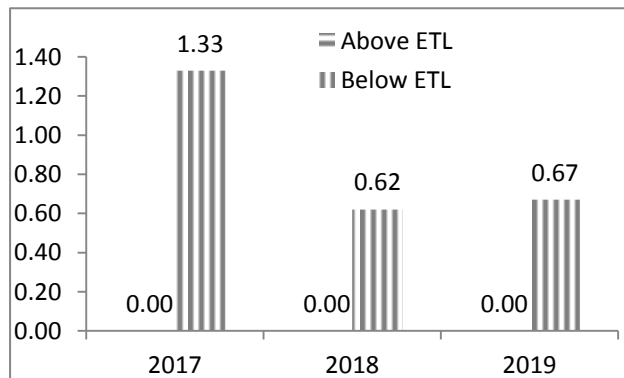
Mealy Bug: On overall Punjab basis 9.49% spots (all considered above ETL) of Mealy Bug have been observed as compared to 8.02% in last week and 7.60% spots during the same corresponding period of the last year.



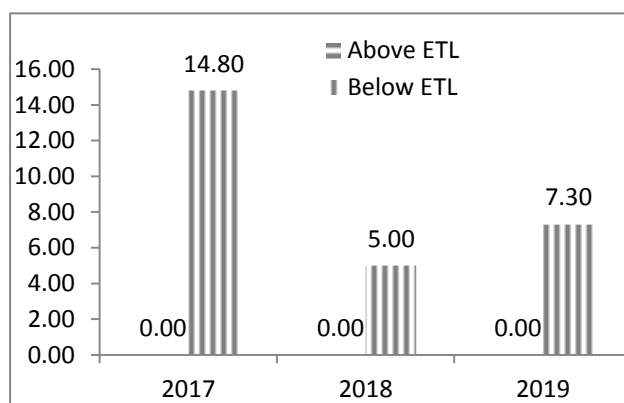
Tehsil wise percentage of hot spots of mealy bug

S. NO.	TEHSIL	%AGE	S.NO.	TEHSIL	%AGE
1	HASILPUR	58.9	23	SILLANWALI/ SAHIWAL	9.1
2	RAJAN PUR	39.1	24	LODHRAN	8.0
3	BAHAWAL PUR	35.1	25	FORT ABBAS	7.5
4	JALAL PUR P.W	33.3	26	MINCHAN ABAD	7.3
5	CHISHTIAN	32.0	27	KABIR WALA	6.4
6	A.P.EAST	26.7	28	JATOI	6.3
7	R.Y.KHAN	23.4	29	KAROR L.E.	6.0
8	JAM PUR	16.7	30	DUYAPUR	5.8
9	KHAN PUR	14.8	31	KEHROR PACCA	5.6
10	ROJHAN	14.3	32	MIAN CHANNU	5.4
11	SHUJABAD	14.0	33	MIANWALI	5.0
12	MULTAN	11.3	34	KHANEWAL	4.9
13	KOT CHUTTA	11.1	35	JAHANIAN	4.5
14	YAZMAN	10.9	36	GOJRA	4.5
15	ALI PUR	10.4	37	TAUNSA	4.0
16	BAHAWAL NAGAR	10.0	38	SAHIWAL	3.6
17	LIAQUAT PUR	10.0	39	VEHARI	2.7
18	SADIQ ABAD	10.0	40	KOT ADDU	2.5
19	BURE WALA	9.5	41	MAILSI	2.4
20	T.T.SINGH	9.4	42	PEER MEHAL	2.2
21	MUZUFAR GARH	9.1	43	CHICHA WATNI	2.0
22	FAISAL ABAD	9.1	44	CHOBARA	2.0

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 0.67% below ETL spots have been observed during current week as compared to 1.38% in last week and 0.62% during the same corresponding period of last year.

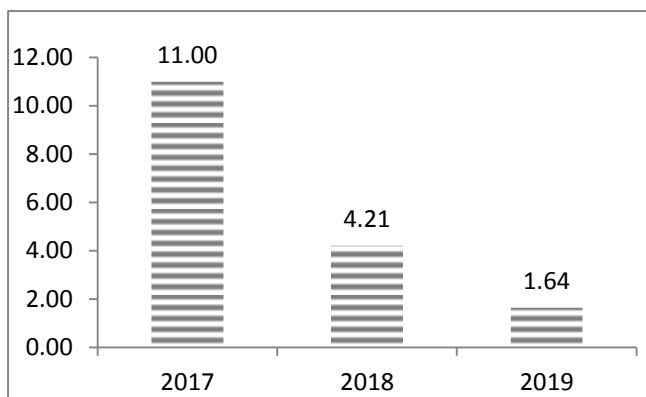


Dusky Cotton Bug: On overall Punjab basis 0.00% above ETL spots have been observed during current week as compared to 0.00% in last week and 0.00% during the same corresponding period of last year. And 7.30% below ETL spots have been observed during current week as compared to 6.41% in



last week and 5.02% during the same corresponding period of last year.

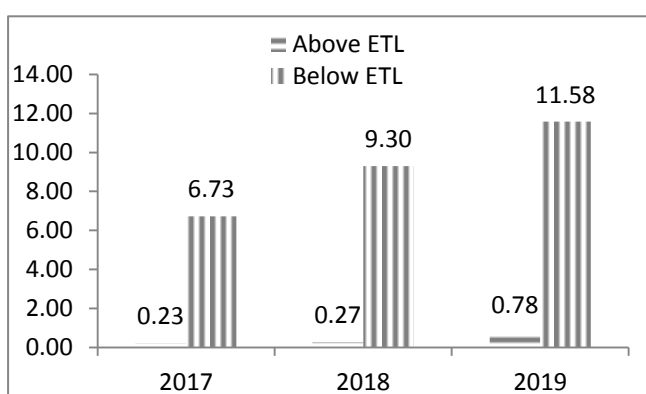
Armyworm: On overall Punjab basis 1.64% spots (all considered above ETL) of Armyworm have been observed as compared to 1.57% in last week and 4.21% spots during the same corresponding period of the last year.



Tehsil wise percentage of hot spots of army worm

S. NO.	TEHSIL	%AGE	S.NO.	TEHSIL	%AGE
1	RENALA KHURD	20.0	12	KHAN PUR	3.7
2	DEPALPUR	14.8	13	HASILPUR	3.6
3	OKARA	11.1	14	MIAN CHANNU	2.7
4	SADIQ ABAD	10.0	15	SHUJABAD	2.3
5	JAM PUR	8.3	16	JAHANIAN	2.3
6	KOT ADDU	7.5	17	RAJAN PUR	2.2
7	R.Y.KHAN	6.4	18	CHICHA WATNI	2.0
8	FORT ABBAS	5.0	19	CHISHTIAN	2.0
9	BAHAWAL PUR	4.1	20	KAROR L.E.	2.0
10	BAHAWAL NAGAR	4.0	21	MULTAN	1.9
11	LIAQUAT PUR	4.0			

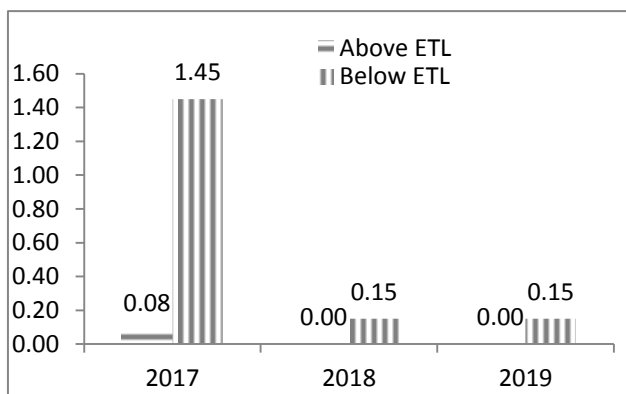
Pink Boll Worm: On overall Punjab basis 0.78% above ETL spots have been observed as compared to 0.69% in last week and 0.27% same corresponding period of the last year. And 11.58% below ETL spots have been observed as compared to 8.08% in last week and 9.30% during same corresponding period of last year.



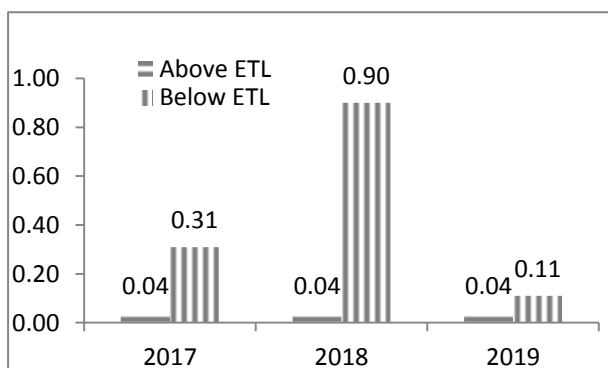
Tehsil wise percentage of hot spots of Pink Bollworm

S. NO.	TEHSIL	%AGE	S.NO.	TEHSIL	%AGE
1	BAHAWAL PUR	6.8	6	HASILPUR	3.6
2	CHISHTIAN	6.0	7	A.P.EAST	3.3
3	BURE WALA	4.8	8	VEHARI	2.7
4	ALI PUR	4.2	9	FORT ABBAS	2.5
5	BAHAWAL NAGAR	4.0	10	CHICHA WATNI	2.0

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 0.15% below ETL spots have been observed as compared to 0.04% in last week and 0.15% during same corresponding period of last year.



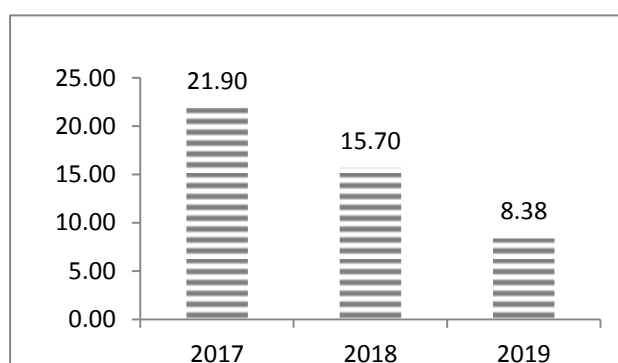
Spotted Bollworm: On overall Punjab basis 0.04% above ETL spots have been observed as compared to 0.00% in last week and 0.04% during same corresponding period of last year & 0.11% below ETL spots have been observed as compared to 0.54% in last week and 0.31% during same corresponding period of last year.



Tehsil wise percentage of hot spots of spotted boll worm

S. NO.	TEHSIL	%AGE
1	JAM PUR	2.1

CLCuV: On overall Punjab basis 8.38% spots (all considered above ETL) of CLCV have been observed as compared to 5.68% in last week and 15.75% during the same corresponding period of the last year.



Tehsil wise percentage of hot spots of cotton leaf curl virus

S. NO.	TEHSIL	%AGE	S.NO.	TEHSIL	%AGE
1	KOT ADDU	62.5	18	SADIQ ABAD	10.0
2	MULTAN	47.2	19	KHANEWAL	9.8
3	JALAL PUR P.W	46.7	20	JAHANIAN	9.1
4	SHUJABAD	37.2	21	SILLANWALI/ SAHIWAL	9.1
5	MUZUFAR GARH	24.24	22	JAM PUR	8.3
6	ARIF WALA	23.7	23	SAHIWAL	7.1
7	BAHAWAL PUR	21.6	24	RAJAN PUR	6.5
8	BURE WALA	21.4	25	KHAN PUR	5.6
9	R.Y.KHAN	19.1	26	MIANWALI	5.0
10	LIAQUAT PUR	18.0	27	MAILSI	4.8
11	JATOI	15.6	28	PAK PATTAN	4.3
12	KABIR WALA	14.9	29	PEER MEHAL	4.3
13	KEHROR PACCA	14.8	30	LODHRAN	4.0
14	HASILPUR	14.3	31	CHISHTIAN	4.0
15	MIAN CHANNU	13.5	32	KAROR L.E.	4.0
16	VEHARI	13.5	33	LAYYAH	2.0
17	ALI PUR	10.4	34	GOJRA	1.5

FORECAST FOR THE NEXT WEEK

Meteorological data of the current week 2019-2018

Districts	2019				2018			
	Temperature		R.H%	Rainfall (mm)	Temperature °C		RH%	Rainfall (mm)
	Max.	Min.			Max.	Min.		
Multan	36.20	29.50	76.10	28.20	34.90	29.50	71.40	0.00
Khanewal	36.63	28.00	64.75	2.00	38.30	30.00	51.50	0.00
Vehari	36.80	28.40	72.35	50.00	37.00	29.70	56.40	0.00
Lodhran	37.29	28.43	65.14	0.00	38.10	27.86	39.71	0.00
Sahiwal	35.71	27.22	75.78	11.00	36.83	27.64	66.06	45.00
Pakpattan	40.22	32.67	66.00	20.00	41.56	32.89	60.00	0.00
Okara	37.50	28.00	72.00	0.00	38.50	27.50	76.00	0.00
Bahawalpur	38.25	28.99	65.13	0.00	38.23	28.45	59.94	41.60
Bahawalnagar	36.59	27.45	66.68	0.55	40.05	30.09	53.73	0.00
R.Y.Khan	40.60	28.60	75.40	0.00	40.25	27.80	77.00	0.00
D.G. Khan	40.43	30.14	60.07	0.00	41.00	28.00	51.86	0.00
M. Garh	36.60	27.80	65.92	1.00	39.30	28.90	55.20	0.00
Rajanpur	40.4	29.76	64.80	15.00	35.38	28.58	60.30	0.00
Layyah	34.16	28.83	44.50	33.00	42.16	29.66	40.83	0.00
TOT/AVG	37.67	28.84	66.76	11.48	38.68	29.04	58.57	6.18

Weather forecast for next 7 day in cotton zone

Division	Dated	6/8	7/8	8/8	9/8	10/8	11/8	12/8
Multan	Max.Temp.	43	37	37	39	38	40	39
	Min.Temp.	34	30	30	30	31	31	31
	Humidity %	31	44	46	41	45	39	23
Sahiwal	Max.Temp.	38	35	35	37	39	38	35
	Min.Temp.	30	28	27	29	28	30	31
	Humidity %	50	60	55	47	42	44	31
Bahawalpur	Max.Temp.	42	37	36	38	38	40	38
	Min.Temp.	32	30	29	30	30	30	30
	Humidity %	33	44	49	43	42	37	28
D.G. Khan	Max.Temp.	44	39	38	40	37	40	39
	Min.Temp.	34	32	31	30	29	31	32
	Humidity %	29	38	46	40	47	39	25
Average Cotton Region	Max.Temp.	38.43						
	Min.Temp.	30.36						
	Humidity %	40.64						

Source: timeanddate.com

Summary of weather forecast

Overall weather for seven days in cotton zone during next week will remain hot and dry with an average 1°C decrease in temperature.

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. 37.67 °C, Min. 28.84°C with R. humidity 66.76%) & forecast for the next week temp. Max. 38.43°C, Min. 30.36°C with humidity 40.64%. Keeping in view the temperature for current week and weather forecast of next week, it is predicted that population of this pest will increase during the coming week as the temperature 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. 37.67 °C, Min. 28.84°C with R. humidity 66.76%) & forecast for the next week temp. Max. 38.43°C, Min. 30.36°C with humidity 40.64%. Keeping in view above all, it is predicted that population of this pest will increase 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. 37.67 °C, Min. 28.84°C with R. humidity 66.76%) & forecast for the next week temp. Max.

38.43°C, Min. 30.36°C with humidity 40.64%. 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. 37.67 °C, Min. 28.84°C with R. humidity 66.76%) & forecast for the next week temp. Max. 38.43°C, Min. 30.36°C with humidity 40.64%. 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. 37.67 °C, Min. 28.84°C with R. humidity 66.76%) & forecast for the next week temp. Max. 38.43°C, Min. 30.36°C with humidity 40.64%. 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. 37.67 °C, Min. 28.84°C with R. humidity 66.76%) & forecast for the next week temp. Max. 38.43°C, Min. 30.36°C with humidity 40.64%. Keeping in view above all, it is predicted that population of this pest will increase during the coming week.

Pink Bollworm:

Although PBW moths catches have been observed in pheromone installed traps in various cotton districts as given in the Table 13, Pest situation reveals that its

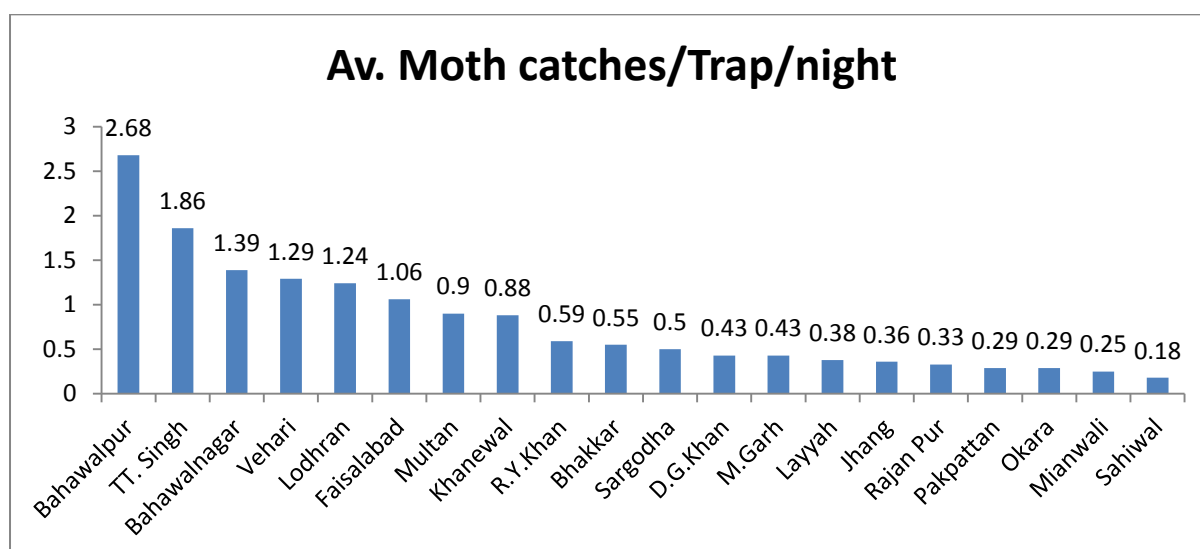
population on (above ETL) has slightly increased as compared to last week and with same week of last year on cotton crop. This pest flourishes best at moderate climate with optimum temperature 32-40 °C with relative humidity above 60-80%. Maximum lethal temperature for this pest is 45-53 °C. The current weather conditions on overall Punjab basis (Max temp. 37.67 °C, Min. 28.84°C with R. humidity 66.76%) & forecast for the next week temp. Max. 38.43°C, Min. 30.36°C with humidity 40.64%. 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:

- a. 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.
- b. 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 1st Week of August, 2019

Moth Catches in Pheromone Traps During 1 st Week of August, 2019			
District	Traps Installed	Av. Moth catches/Trap/night	Av. No. of Moths other than PBW/ Trap/Night
Multan	6	0.90	0.0
Khanewal	8	0.88	0.00
Vehari	6	1.29	0.00
Lodhran	6	1.24	0.29
Sahiwal	4	0.18	0.00
Pakpattan	4	0.29	0.00
Okara	4	0.29	0.00
Bahawalpur	8	2.68	0.05
Bahawalnagar	10	1.39	0.33
R.Y.Khan	8	0.59	0.25
D.G.Khan	4	0.43	0.00
M.Garh	8	0.43	0.00
Rajan Pur	6	0.33	0.00
Layyah	6	0.38	0.00
Sargodha	2	0.50	0.00
Mianwali	4	0.25	0.00
Bhakkar	8	0.55	0.00
Faisalabad	5	1.06	0.00
TT. Singh	6	1.86	0.00
Jhang	4	0.36	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. 37.67 °C, Min. 28.84°C with R. humidity 66.76%) & forecast for the next week temp. Max. 38.43°C, Min. 30.36°C with humidity 40.64%.

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 1st week of August, 2019

Moth Catches on Light Traps/Trap/week During 1 st Week of August, 2019				
District	Traps Installed	A.B.W	S.B.W	Armyworm
Multan	3	1	0	12
Khanewal	4	0	0	17
Vehari	3	2	0	12
Lodhran	3	3	2	5
Sahiwal	2	4	0	2
Pakpattan	2	2	0	4
Okara	3	4	0	7
Bahawalpur	4	3	2	8
Bahawalnagar	5	6	4	13
R.Y.Khan	4	5	3	10
D.G.Khan	3	0	0	0
M.Garh	4	2	0	4
Rajan Pur	3	0	2	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. 37.67 °C, Min. 28.84°C with R. humidity 66.76%) & forecast for the next week temp. Max. 38.43°C, Min. 30.36°C with humidity 40.64%. Due to cultivation of more BT varieties, it is predicted that above ETL population of this pest will remain zero 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 37.67 °C, Min. 28.84°C with R. humidity 66.76%) & forecast for the next week temp. Max. 38.43°C, Min. 30.36°C with humidity 40.64%. Keeping in view above all, it is predicted that population of this pest will increase 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
 - Flunicamid 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
			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 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