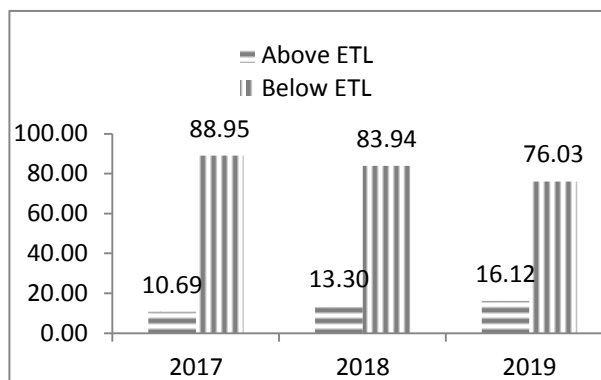


PEST SITUATION ON COTTON CROP IN PUNJAB DURING 2ND WEEK OF OCTOBER, 2019

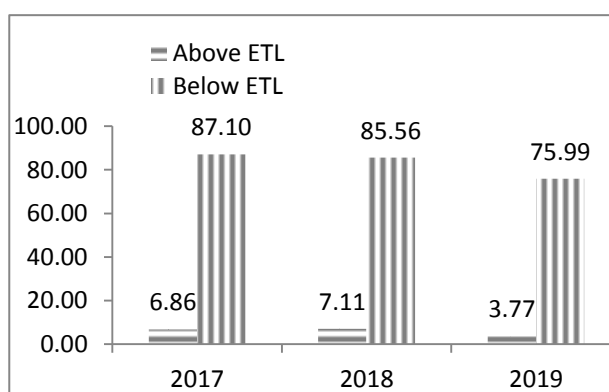
Whitefly: On overall Punjab basis 16.12% above ETL spots have been observed during current week as compared to 21.73% in last week and 13.30% during the same corresponding period of last year. And 76.03% below ETL spots have been observed during current week as compared 72.37% in last week and 83.94% during the same corresponding period of last year.



Tehsil wise percentage of hot spots of whitefly

Sr#	TEHSIL	%AGE	Sr#	TEHSIL	%AGE
1	JAM PUR	59.4	26	KEHROR PACCA	14.1
2	BAHAWAL PUR	50.0	27	MANKERA	13.3
3	SHUJABAD	45.2	28	KOT ADDU	12.5
4	HASILPUR	44.0	29	TAUNSA	12.0
5	RAJAN PUR	40.6	30	ALI PUR	12.0
6	ROJHAN	39.6	31	KHANEWAL	10.8
7	JALAL PUR P.W	37.5	32	18-HAZARI	8.3
8	MULTAN	35.7	33	PIPLAN	8.0
9	MIAN CHANNU	34.2	34	MUZUFAR GARH	7.9
10	FORT ABBAS	32.5	35	RENALA KHURD	7.7
11	KOT CHUTTA	32.5	36	A.P SIAL	7.3
12	SADIQ ABAD	29.5	37	KALLOR KOT	6.5
13	R.Y.KHAN	29.1	38	OKARA	6.3
14	KHAN PUR	28.8	39	ISA KHEL	5.7
15	BAHAWAL NAGAR	27.5	40	KABIR WALA	5.0
16	A.P.EAST	26.7	41	BURE WALA	5.0
17	LIAQUAT PUR	25.0	42	MIANWALI	5.0
18	HARROON ABAD	22.5	43	JHANG	4.8
19	YAZMAN	22.2	44	PAK PATTAN	4.2
20	CHISHTIAN	22.0	45	ARIF WALA	2.6
21	LODHRAN	20.8	46	VEHARI	2.5
22	JATOI	20.5	47	MAILSI	2.4
23	MINCHAN ABAD	20.5	48	CHICHA WATNI	2.1
24	D.G.KHAN	17.5	49	CHOBARA	2.0
25	DUYAPUR	14.6			

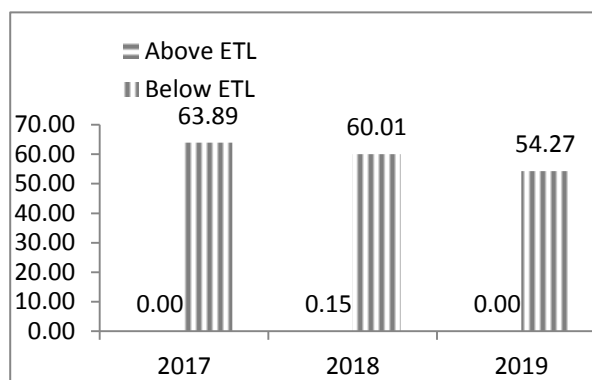
Jassid: On overall Punjab basis 3.77% above ETL spots has been observed as compared to 4.74% in last week and same week of last year 7.11%. And 75.99% below ETL spots have been observed during current week as compared to 80.33% in last week and 85.56% during the same corresponding period of last year.



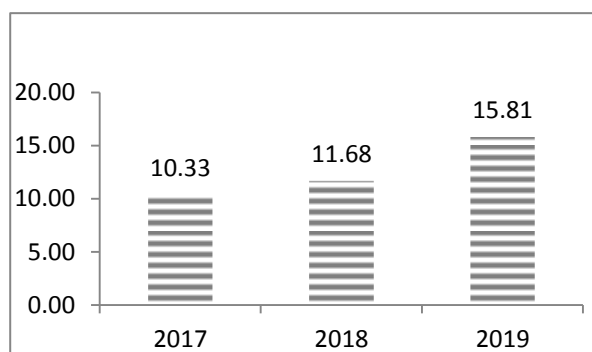
Tehsil wise percentage of hot spots of Jassid

Sr#	TEHSIL	%AGE	Sr#	TEHSIL	%AGE
1	DEPALPUR	22.2	20	HASILPUR	4.0
2	BAHAWAL NAGAR	20.0	21	CHOBARA	4.0
3	CHISHTIAN	18.0	22	KAROR L.E.	3.8
4	FORT ABBAS	17.5	23	KHAN PUR	3.4
5	CHICHA WATNI	14.6	24	LIAQUAT PUR	3.3
6	PAK PATTAN	12.5	25	YAZMAN	3.2
7	MINCHAN ABAD	11.4	26	KEHROR PACCA	3.1
8	HAROON ABAD	10.0	27	TANDLIANWALA	2.7
9	SAHIWAL	8.5	28	JAHANIAN	2.5
10	LAYYAH	7.8	29	KABIR WALA	2.5
11	RENALA KHURD	7.7	30	BURE WALA	2.5
12	SUMUNDRI	7.7	31	MIANWALI	2.5
13	R.Y.KHAN	7.3	32	JHANG	2.4
14	OKARA	6.3	33	GOJRA	2.3
15	ISA KHEL	5.7	34	SHORKOT	2.1
16	ARIF WALA	5.3	35	LODHRAN	2.1
17	BAHAWAL PUR	5.2	36	DUYAPUR	2.1
18	SADIQ ABAD	4.5	37	T.T.SINGH	1.8
19	PIR MAHAL	4.4			

Thrips: On overall Punjab basis 0.00% above ETL spots have been observed as compared to 0.00% in last week and same week of last year i.e. 0.15%. And 54.27% below ETL spots have been observed during current week as compared to 66.46% in last week and 60.01% during the same corresponding period of last year.



Mealy Bug: On overall Punjab basis 15.81% spots (all considered above ETL) of Mealy Bug have been observed as compared to 17.71% in last week and 11.68% spots during the same corresponding period of the last year.

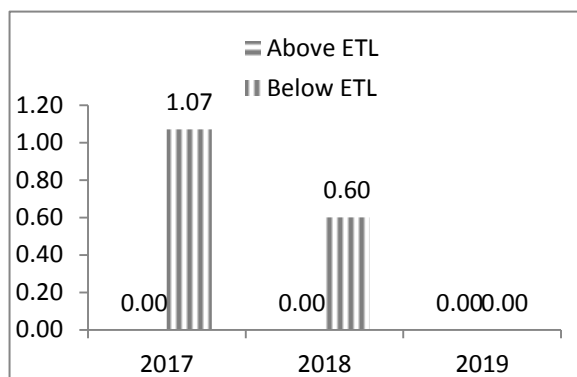


Tehsil wise percentage of hot spots of mealy bug

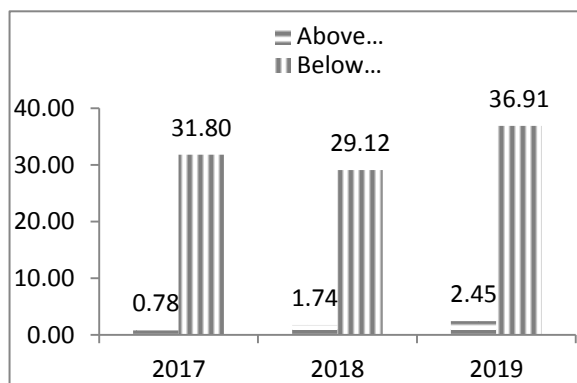
Sr#	TEHSIL	%AGE	Sr#	TEHSIL	%AGE
1	HASILPUR	84.0	25	A.P.EAST	13.3
2	MULTAN	47.6	26	MANKERA	13.3
3	KHAN PUR	39.0	27	VEHARI	12.5
4	BAHAWAL PUR	37.9	28	BURE WALA	12.5
5	SHUJABAD	33.3	29	JAM PUR	12.5
6	ROJHAN	33.3	30	PIPLAN	12.0
7	FORT ABBAS	32.5	31	KHANEWAL	10.8
8	RAJAN PUR	31.3	32	ARIF WALA	10.5
9	R.Y.KHAN	29.1	33	MUZUFAR GARH	10.5
10	BAHAWAL NAGAR	27.5	34	D.G.KHAN	10.0
11	LIAQUAT PUR	26.7	35	TAUNSA	10.0
12	SADIQ ABAD	25.0	36	KOT CHUTTA	10.0

13	MAILSI	24.4	37	LAYYAH	9.8
14	JALAL PUR P.W	22.5	38	PAK PATTAN	8.3
15	HAROON ABAD	22.5	39	CHOBARA	8.0
16	CHISHTIAN	22.0	40	KABIR WALA	7.5
17	ALI PUR	22.0	41	MIANWALI	7.5
18	MIAN CHANNU	21.1	42	ISA KHEL	5.7
19	MINCHAN ABAD	20.5	43	KAROR L.E.	5.7
20	KEHROR PACCA	20.3	44	JAHANIAN	2.5
21	LODHRAN	18.8	45	PIR MAHAL	2.2
22	KOT ADDU	18.8	46	SHORKOT	2.1
23	DUYAPUR	14.6	47	CHICHA WATNI	2.1
24	YAZMAN	14.3	48	T.T.SINGH	1.8

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 0.00% below ETL spots have been observed during current week as compared to 0.07% in last week and 0.60% during the same corresponding period of last year.



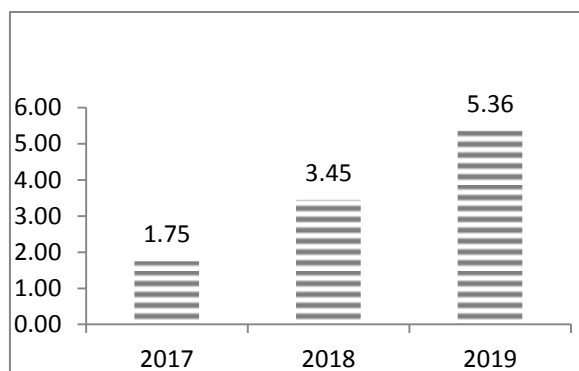
Dusky Cotton Bug: On overall Punjab basis 2.45% above ETL spots have been observed during current week as compared to 1.38% in last week and 1.74% during the same corresponding period of last year. And 36.91% below ETL spots have been observed during current week as compared to 30.68% in last week and 29.12% during the same corresponding period of last year.



Tehsil wise percentage of hot spots of Dusky Cotton Bug

Sr#	TEHSIL	%AGE	Sr#	TEHSIL	%AGE
1	HASILPUR	66.0	5	DUYAPUR	4.2
2	BAHAWAL PUR	29.3	6	SHUJABAD	2.4
3	LODHRAN	8.3	7	CHISHTIAN	2.0
4	KEHROR PACCA	7.8			

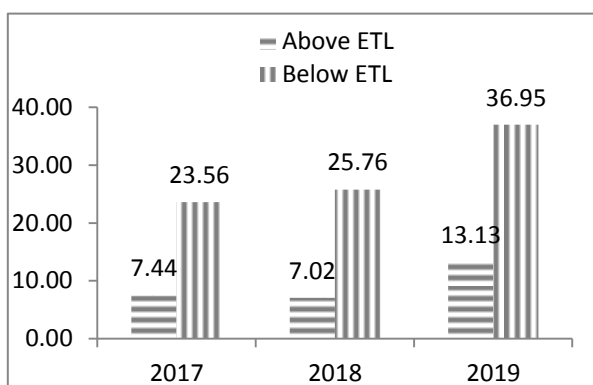
Armyworm: On overall Punjab basis 5.36% spots (all considered above ETL) of Armyworm have been observed as compared to 4.89% in last week and 3.45% spots during the same corresponding period of the last year.



Tehsil wise percentage of hot spots of Army worm

Sr#	TEHSIL	%AGE	Sr#	TEHSIL	%AGE
1	BAHAWAL PUR	29.3	17	JALAL PUR P.W	5.0
2	A.P.EAST	21.7	18	MAILSI	4.9
3	LODHRAN	20.8	19	SAHIWAL	4.3
4	KEHROR PACCA	20.3	20	KAROR L.E.	3.8
5	DUYAPUR	18.8	21	T.T.SINGH	3.6
6	JATOI	15.4	22	JAHANIAN	2.5
7	KHAN PUR	15.3	23	KABIR WALA	2.5
8	MULTAN	11.9	24	VEHARI	2.5
9	SADIQ ABAD	11.4	25	BAHAWAL NAGAR	2.5
10	R.Y.KHAN	10.9	26	JHANG	2.4
11	MIAN CHANNU	10.5	27	GOJRA	2.3
12	LIAQUAT PUR	10.0	28	PIR MAHAL	2.2
13	ALI PUR	10.0	29	CHICHA WATNI	2.1
14	SHUJABAD	9.5	30	KOT ADDU	2.1
15	HASILPUR	6.0	31	CHOBARA	2.0
16	KHANEWAL	5.4	32	LAYYAH	2.0

Pink Boll Worm: On overall Punjab basis 13.13% above ETL spots have been observed as compared to 12.75% in last week and 7.02% same corresponding period of the last year. And 36.95% below ETL spots have been observed as compared to 34.23% in last week and 25.76% during same corresponding period of last year.

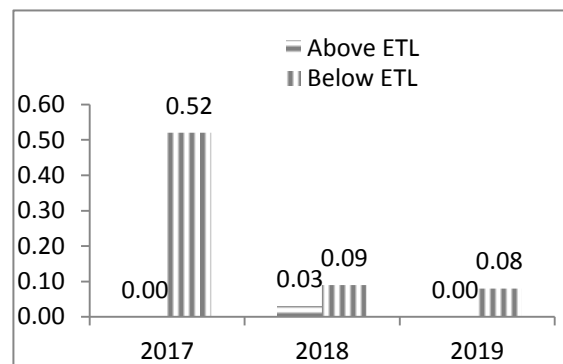


Tehsil wise percentage of hot spots of Pink Bollworm

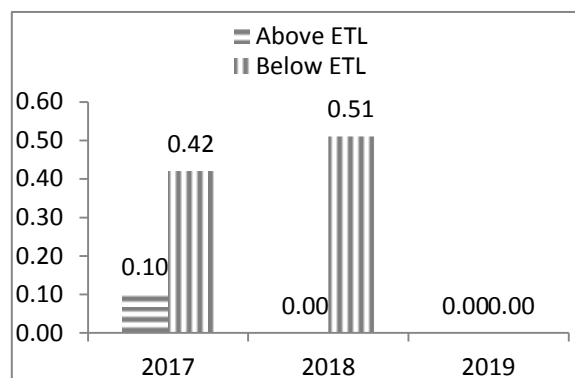
Sr#	TEHSIL	%AGE	Sr#	TEHSIL	%AGE
1	HASILPUR	58.0	26	OKARA	12.5
2	BAHAWAL PUR	41.4	27	HAROON ABAD	12.5
3	MAILSI	36.6	28	YAZMAN	11.1
4	MIAN CHANNU	34.2	29	JALAL PUR P.W	10.0
5	KABIR WALA	30.0	30	A.P.EAST	10.0
6	MULTAN	26.2	31	ALI PUR	10.0
7	VEHARI	25.0	32	KALLOR KOT	9.7
8	R.Y.KHAN	23.6	33	MINCHAN ABAD	9.1
9	DARYA KHAN	23.5	34	PAK PATTAN	8.3
10	LODHRAN	22.9	35	ARIF WALA	7.9
11	DUYAPUR	22.9	36	RENALA KHURD	7.7
12	DEPALPUR	22.2	37	FORT ABBAS	7.5
13	CHISHTIAN	22.0	38	MIANWALI	7.5

14	KEHROR PACCA	21.9	39	PIR MAHAL	6.7
15	SHUJABAD	21.4	40	LAYYAH	5.9
16	CHICHA WATNI	20.8	41	ISA KHEL	5.7
17	KHAN PUR	20.3	42	MUZUFAR GARH	5.3
18	JAHANIAN	20.0	43	CHOBARA	4.0
19	SAHIWAL	19.1	44	TANDLIANWALA	4.0
20	BURE WALA	17.5	45	PIPLAN	4.0
21	BAHAWAL NAGAR	17.5	46	KAROR L.E.	3.8
22	KHANEWAL	16.2	47	JATOI	2.6
23	SADIQ ABAD	15.9	48	GOJRA	2.3
24	BHAKKAR	15.6	49	T.T.SINGH	1.8
25	LIAQUAT PUR	15.0			

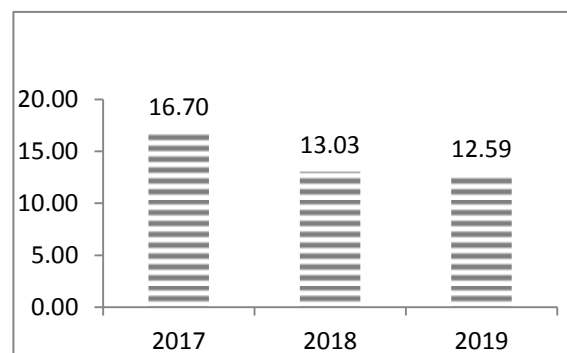
American Bollworm: On overall Punjab basis 0.00% above ETL spots have been observed as compared to 0.00% in last week and 0.03% during same corresponding period of last year. And 0.08% below ETL spots have been observed as compared to 0.14% in last week and 0.09% during same corresponding period of last year.



Spotted Bollworm: On overall Punjab basis 0.00% above ETL spots have been observed as compared to 0.00% in last week and 0.00% during same corresponding period of last year & 0.00% below ETL spots have been observed as compared to 0.58% in last week and 0.51% during same corresponding period of last year.



CLCuV: On overall Punjab basis 12.59% spots (all considered above ETL) of CLCV have been observed as compared to 15.25% in last week and 13.03% during the same corresponding period of the last year.



Tehsil wise percentage of hot spots of cotton leaf curl virus

Sr#	TEHSIL	%AGE	Sr#	TEHSIL	%AGE
1	VEHARI	72.5	22	RENALA KHURD	15.4
2	KABIR WALA	42.5	23	ARIF WALA	13.2
3	MIAN CHANNU	39.5	24	PAK PATTAN	12.5
4	MAILSI	39.0	25	BAHAWAL NAGAR	12.5
5	MULTAN	38.1	26	FORT ABBAS	12.5
6	BURE WALA	37.5	27	BAHAWAL PUR	12.1
7	SHUJABAD	33.3	28	ALI PUR	12.0
8	SILLANWALI/ SAHIWAL	33.3	29	CHOBARA	12.0
9	KEHROR PACCA	28.1	30	LAYYAH	11.8
10	HASILPUR	28.0	31	DEPALPUR	11.1
11	SADIQ ABAD	25.0	32	KALLOR KOT	9.7
12	KHANEWAL	24.3	33	JATOI	7.7
13	KHAN PUR	20.3	34	PIR MAHAL	6.7
14	JAHANIAN	20.0	35	CHICHA WATNI	6.3
15	R.Y.KHAN	20.0	36	CHISHTIAN	6.0
16	LODHRAN	18.8	37	KAROR L.E.	5.7
17	DUYAPUR	18.8	38	A.P.EAST	5.0
18	OKARA	18.8	39	JHANG	4.8
19	BHAKKAR	18.8	40	YAZMAN	3.2
20	LIAQUAT PUR	18.3	41	MIANWALI	2.5
21	JALAL PUR P.W	17.5			

FORECAST FOR THE NEXT WEEK

Meteorological data of the current week 2019-2018

Districts	2019				2018			
	Temperature		R.H%	Rainfall (mm)	Temperature		RH%	Rainfall (mm)
	Max.	Min.			Max.	Min.		
Multan	29.17	20.33	79.50	0.00	27.14	18.57	76.64	0.00
Khanewal	29.90	20.14	76.86	5.00	34.71	23.23	60.57	0.00
Vehari	30.67	22.67	79.75	0.00	31.38	22.50	48.81	0.00
Lodhran	30.86	21.29	78.79	0.00	33.86	21.00	53.86	0.00
Sahiwal	32.07	20.06	67.81	3.00	33.50	19.80	60.00	0.00
Pakpattan	34.43	21.70	66.00	0.00	35.86	22.00	62.00	0.00
Okara	34.00	26.00	72.00	1.00	36.00	26.50	65.00	0.00
Bahawalpur	33.69	20.01	66.21	40.20	35.20	20.69	60.57	41.60
Bahawalnagar	32.83	21.71	62.38	0.33	37.63	25.42	56.75	0.00
R.Y.Khan	35.83	22.00	80.33	0.00	37.41	20.83	79.33	0.00
D.G.Khan	37.00	22.57	49.79	0.00	34.29	21.71	50.14	0.00
M.Garh	34.24	24.58	50.29	8.80	34.14	21.64	55.66	0.00
Rajanpur	36.06	21.26	59.60	0.00	36.00	21.54	48.20	0.00
Layyah	33.50	19.66	60.50	0.00	39.16	22.50	52.83	0.00
TOT/AVG	33.16	21.71	67.84	58.33	34.73	21.99	59.31	41.60

Weather forecast for next 7 day in cotton zone

Division	Dated	14/10	15/10	16/10	17/10	18/10	19/10	20/10
Multan	Max.Temp.	37	37	36	36	35	33	33
	Min.Temp.	22	22	21	21	22	20	20
	Humidity %	23	22	22	20	25	32	14
Sahiwal	Max.Temp.	37	37	37	37	34	33	32
	Min.Temp.	21	20	20	20	20	20	20
	Humidity %	22	20	21	20	29	32	14
Bahawalpur	Max.Temp.	37	37	37	37	34	34	33
	Min.Temp.	23	22	21	22	21	21	18
	Humidity %	21	20	20	20	20	28	30
D.G. Khan	Max.Temp.	38	38	38	38	34	33	34
	Min.Temp.	23	22	22	21	21	21	20
	Humidity %	20	19	19	17	25	29	13
Average Cotton Region	Max. Temp.	35.57						
	Min. Temp.	20.96						
	Humidity %	22.04						

Source: timeanddate.com

Summary of weather forecast

Overall weather for seven days in cotton zone during next week will remain moderate and temperature may slightly 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. 33.16°C, Min. 21.71°C with R. humidity 67.84%) & forecast for the next week temp. Max. 35.57°C, Min. 20.96°C with humidity 22.04%. 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 not 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. 33.16°C, Min. 21.71°C with R. humidity 67.84%) & forecast for the next week temp. Max. 35.57°C, Min. 20.96°C with humidity 22.04%. Keeping in view above all, it is predicted that population of this pest will further decrease during the coming week. 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. 33.16°C, Min. 21.71°C with R. humidity 67.84%) & forecast for the next week temp. Max. 35.57°C, Min. 20.96°C with humidity 22.04%. Keeping in view above all, it is predicted that population of this pest will further 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. 33.16°C, Min. 21.71°C with R. humidity 67.84%) & forecast for the next week temp. Max. 35.57°C, Min. 20.96°C with humidity 22.04%. Keeping in view above all, it is predicted that population of this pest will further decrease 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. 33.16°C, Min. 21.71°C with R. humidity 67.84%) & forecast for the next week temp. Max. 35.57°C, Min. 20.96°C with humidity 22.04%. Keeping in view above all, it is predicted that population of this pest will remain on lower ebb 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. 33.16°C, Min. 21.71°C with R. humidity 67.84%) & forecast for the next week temp. Max. 35.57°C, Min. 20.96°C with humidity 22.04%. Keeping in view above all, it is predicted that population of this pest will increase during the coming week.

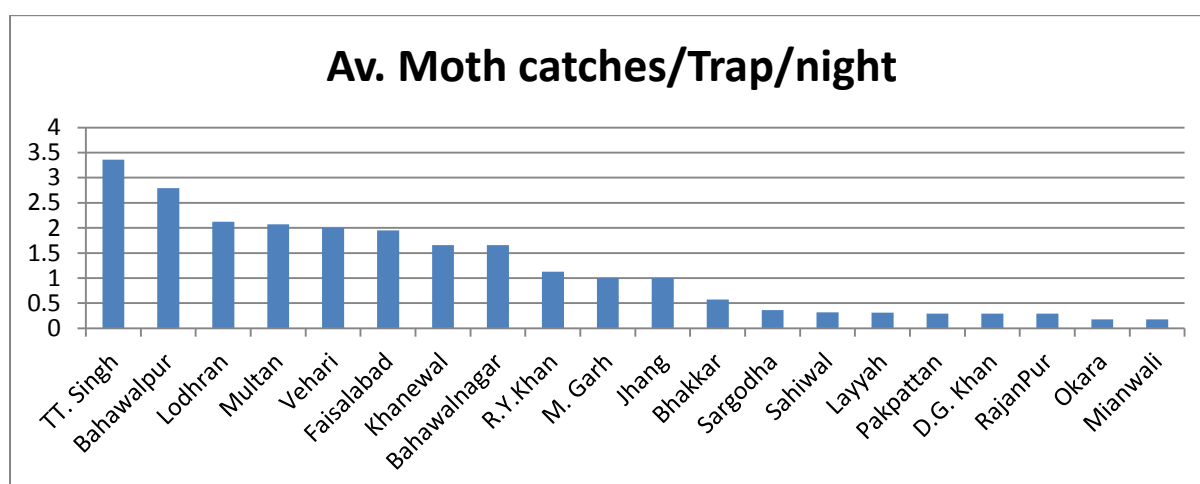
Pink Bollworm: This pest flourishes best at moderate climate with optimum temperature 32-40°C with relative humidity above 60-80%. Maximum lethal temperature for this pest is 45-53 °C. The current weather conditions on overall Punjab basis (Max temp. 33.16°C, Min. 21.71°C with R. humidity 67.84%) & forecast for the next week temp. Max. 35.57°C, Min. 20.96°C with humidity 22.04%. 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 2nd Week of October, 2019

Moth Catches in Pheromone Traps During 2 nd Week of October, 2019			
District	Traps Installed	Av. Moth catches/Trap/night	Av. No. of Moths other than PBW/ Trap/Night
Multan	6	2.07	0.0
Khanewal	8	1.66	0.00
Vehari	6	2.00	0.00
Lodhran	6	2.12	0.10
Sahiwal	4	0.32	0.00
Pakpattan	4	0.29	0.00
Okara	4	0.18	0.00
Bahawalpur	8	2.79	0.11
Bahawalnagar	10	1.66	0.09
R.Y.Khan	8	1.13	0.43
D.G. Khan	4	0.29	0.00
M. Garh	8	1.00	0.00
RajanPur	6	0.29	0.00
Layyah	6	0.31	0.00
Sargodha	2	0.36	0.00
Mianwali	4	0.18	0.00
Bhakkar	8	0.57	0.00
Faisalabad	5	1.95	0.00
TT. Singh	6	3.36	0.00
Jhang	4	1.00	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. 33.16°C, Min. 21.71°C with R. humidity 67.84%) & forecast for the next week temp. Max. 35.57°C, Min. 20.96°C with humidity 22.04%. Due to cultivation of more BT varieties, it is predicted that population of this pest will remain on lower ebb on cotton crop in the coming week.

Moth catches on light traps during 2nd week of October, 2019

Moth Catches on Light Traps/Trap/week During 2 nd Week of October, 2019				
District	Traps Installed	A.B.W	S.B.W	Armyworm
Multan	3	0	0	12
Khanewal	4	0	0	13
Vehari	3	0	0	4
Lodhran	3	3	0	9
Sahiwal	2	4	0	4
Pakpattan	2	0	0	4
Okara	3	0	0	3
Bahawalpur	4	3	2	8
Bahawalnagar	5	9	3	17
R.Y.Khan	4	5	7	12
D.G.Khan	3	0	0	0
M.Garh	4	0	0	5
RajanPur	3	0	0	2
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. 33.16°C, Min. 21.71°C with R. humidity 67.84%) & forecast for the next week temp. Max. 35.57°C, Min. 20.96°C with humidity 22.04%. Due to cultivation of more BT varieties, it is predicted that above ETL population of this pest will remain such on cotton crop in the coming week.

Armyworm: This pest flourishes best in mild & humid climate with optimum temperature 30-40°C with relative humidity below 70-100%. Maximum lethal temperature for this pest is 45-53 °C. The current weather conditions on overall Punjab basis (temp. Max 33.16°C, Min. 21.71°C with R. humidity 67.84%) & forecast for the next week temp. Max. 35.57°C, Min. 20.96°C with humidity 22.04%. Keeping in view above all, it is predicted that population of this pest will increase during the coming week.

CLCuV: CLCUV spots have significantly decreased from last week and same week of last year on cotton crop. The incidence of this disease is expected to decrease 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 Acr.

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