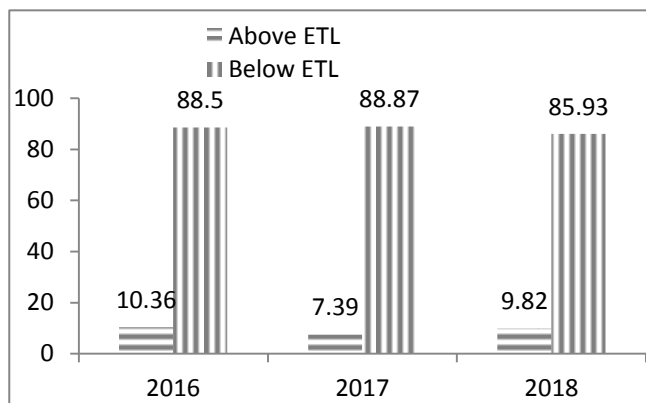


PEST SITUATION ON COTTON CROP IN PUNJAB DURING 3RD WEEK OF OCTOBER, 2018

Whitefly: On overall Punjab basis 9.82% spots above ETL have been observed during current week as compared to 13.30% % in last week and 7.39% during the same corresponding period of last year & 85.93% spots below ETL have been observed during current week as compared to 83.94% in last week and 88.87% during the same corresponding period of last year.

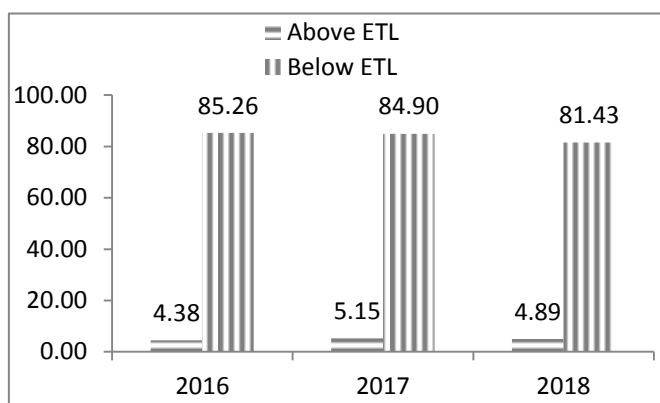


Tehsil wise percentage of hot spots of whitefly

Sr.	TEHSIL	%AGE	Sr.	TEHSIL	%AGE
1	MAILSI	32.0	23	BURE WALA	10.9
2	A.P.EAST	30.0	24	JAM PUR	10.7
3	TAUNSA	26.0	25	ROJHAN	10.7
4	JATOI	25.4	26	MIANWALI	10.6
5	KOT CHUTTA	23.6	27	MUZUFAR GARH	9.5
6	BAHAWAL PUR	22.7	28	ARIF WALA	9.4
7	JALAL PUR P.W	22.0	29	KHAN PUR	9.3
8	VEHARI	20.0	30	KEHROR PACCA	8.6
9	HASILPUR	18.4	31	PAK PATTAN	8.3
10	YAZMAN	17.8	32	PIPLAN	8.3
11	D.G.KHAN	16.9	33	RAJAN PUR	8.2
12	SHUJABAD	16.7	34	KHANEWAL	7.7
13	KAROR L.E.	14.3	35	LIAQUAT PUR	6.0
14	KOT ADDU	14.0	36	OKARA	4.0
15	MULTAN	13.8	37	CHISHTIAN	4.0
16	DUYAPUR	12.7	38	ALI PUR	3.7
17	LAYYAH	12.1	39	BAHAWAL NAGAR	2.5
18	LODHRAN	11.9	40	HAROON ABAD	2.5
19	MIAN CHANNU	11.8	41	FORT ABBAS	2.5
20	SADIQ ABAD	11.8	42	MINCHAN ABAD	2.4
21	R.Y.KHAN	11.5	43	DEPALPUR	2.3
22	CHOBARA	11.0	44	JHANG	1.8

Jassid: On overall Punjab basis 4.89% AETL has been observed as

compared to 7.11% in last week and same week of last year 5.15% & BETL 81.43% spots have been observed during current week as compared to 85.56% in last week and 84.90% during the same corresponding period of last year.

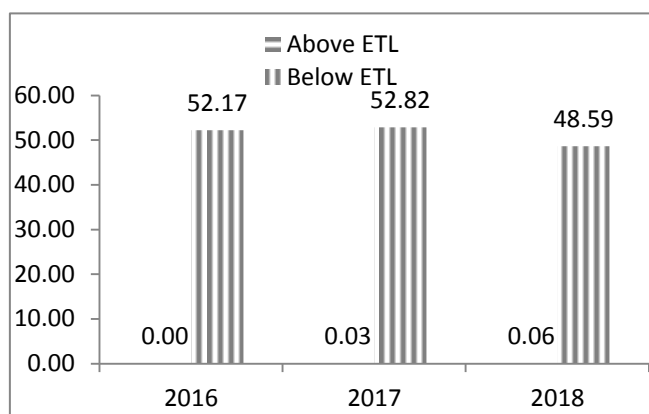


Tehsil wise percentage of hot spots of jassid

Sr.	TEHSIL	%AGE	Sr.	TEHSIL	%AGE
1	SHUJABAD	36.7	20	A.P.EAST	7.0
2	JALAL PUR P.W	18.8	21	YAZMAN	6.7
3	KHANEWAL	14.6	22	HASILPUR	5.9
4	JAHANIAN	13.3	23	BAHAWAL NAGAR	5.8
5	KABIR WALA	12.5	24	HAROON ABAD	5.6
6	MIAN CHANNU	12.2	25	FORT ABBAS	5.0
7	VEHARI	10.4	26	MINCHAN ABAD	4.5
8	MAILSI	10.2	27	CHISHTIAN	4.4
9	BURE WALA	10.0	28	R.Y.KHAN	4.4
10	LODHRAN	10.0	29	KHAN PUR	3.7
11	DUYAPUR	10.0	30	LIAQUAT PUR	3.5
12	KEHROR PACCA	10.0	31	SADIQ ABAD	2.5
13	SAHIWAL	9.1	32	D.G.KHAN	2.2
14	CHICHA WATNI	8.9	33	TAUNSA	2.2
15	PAK PATTAN	8.6	34	KOT CHUTTA	2.1
16	ARIF WALA	8.5	35	MUZUFAR GARH	2.0
17	OKARA	7.3	36	KOT ADDU	2.0
18	DEPALPUR	7.0	37	ALI PUR	1.9
19	BAHAWAL PUR	7.0	38	JATOI	1.9

Thrips: On overall Punjab basis 0.06% above ETL spots has been observed as

compared to 0.15% in last week and same week of last year i.e. 0.03% & BETL 48.59% spots have been observed during current week as compared to 60.01% in last week and 52.82% during the same corresponding period of last year.



Tehsil wise percentage of hot spots of thrips

Sr.	TEHSIL	%AGE
1	SHUJABAD	2.8

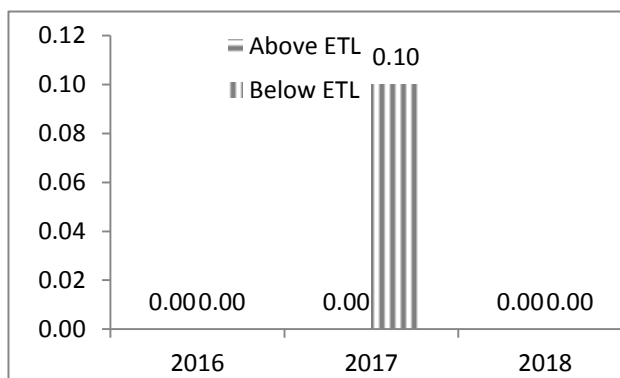
Mealy Bug: On overall Punjab basis 9.76% spots of Mealy Bug have been observed as compared to 11.68% in last week and 8.60% spots during the same corresponding period of the last year.



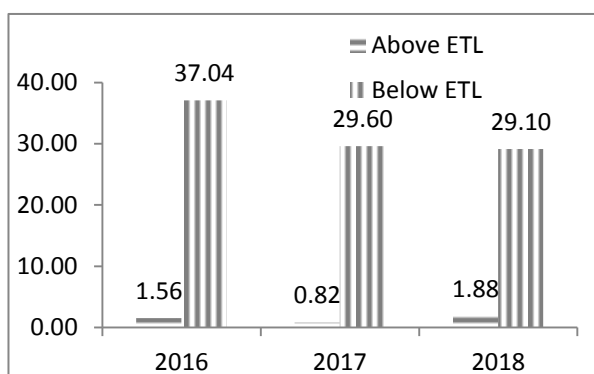
Tehsil wise percentage of hot spots of mealy bug

Sr.	TEHSIL	%AGE	Sr.	TEHSIL	%AGE
1	SHUJABAD	49.0	28	R.Y.KHAN	6.6
2	JALAL PUR P.W	41.4	29	KHAN PUR	6.4
3	KHANEWAL	30.0	30	LIAQUAT PUR	6.3
4	JAHANIAN	30.0	31	SADIQ ABAD	6.3
5	KABIR WALA	27.3	32	D.G.KHAN	6.25
6	MIAN CHANNU	25.9	33	TAUNSA	6.1
7	VEHARI	24.4	34	KOT CHUTTA	6.0
8	MAILSI	22.2	35	MUZUFAR GARH	5.9
9	BURE WALA	18.0	36	KOT ADDU	5.7
10	LODHRAN	17.5	37	ALI PUR	5.5
11	DUYAPUR	15.7	38	JATOI	5.5
12	KEHROR PACCA	14.0	39	LAYYAH	5.0
13	SAHIWAL	13.5	40	CHOBARA	4.9
14	CHICHA WATNI	13.0	41	KAROR L.E.	4.8
15	PAK PATTAN	12.7	42	RAJAN PUR	4.4
16	ARIF WALA	12.3	43	JAM PUR	4.2
17	OKARA	11.5	44	ROJHAN	4.2
18	DEPALPUR	10.0	45	JHANG	4.2
19	BAHAWAL PUR	9.8	46	SHORKOT	4.0
20	A.P.EAST	8.8	47	A.P.SIAL	3.6
21	YAZMAN	8.0	48	T.T.SINGH	3.5
22	HASILPUR	7.7	49	GOJRA	3.4
23	BAHAWAL NAGAR	7.5	50	KAMALIA	3.1
24	HAROON ABAD	7.5	51	FAISAL ABAD	2.3
25	FORT ABBAS	7.1	52	SUMUNDRI, TANDLIANWALA	2.1
26	MINCHAN ABAD	7.0	53	SARGODHA	1.9
27	CHISHTIAN	6.6			

Mites: On overall Punjab basis 0.00% spots above ETL 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 & 0.00% spots below ETL have been observed during current week as compared to 0.60% in last week and 0.10% during the same corresponding period of last year.

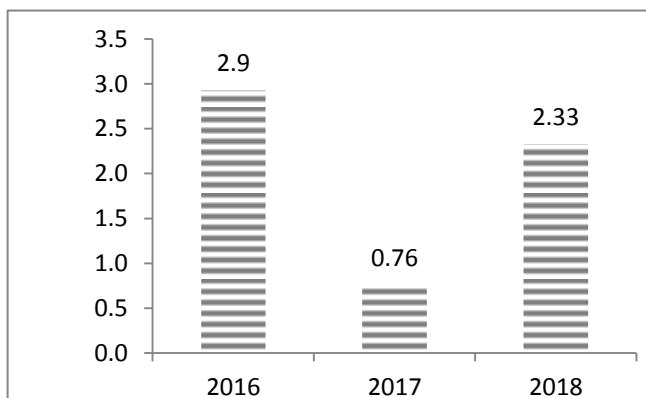


Dusky Cotton Bug: On overall Punjab basis 1.88% spots above ETL have been observed during current week as compared to 1.56% in last week and 0.82% during the same corresponding period of last year & 29.1% spots below ETL have been observed during current week as compared to 37.04% in last week and 29.6% during the same corresponding period of last year.



Sr.	TEHSIL	%AGE	Sr.	TEHSIL	%AGE
1	SHUJABAD	34.1	4	JAHANIAN	12.7
2	JALAL PUR P.W	30.6	5	KABIR WALA	11.9
3	KHANEWAL	15.7	6	MIAN CHANNU	2.2

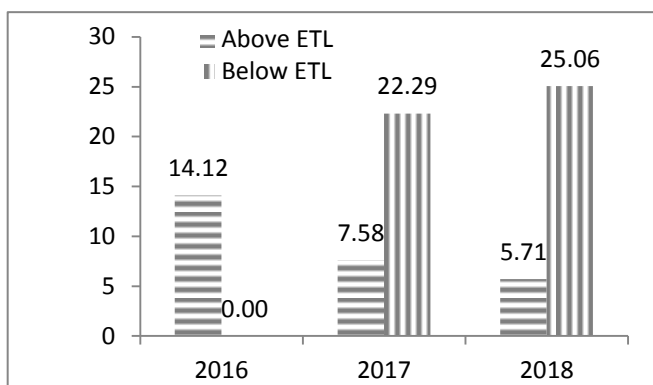
Armyworm: On overall Punjab basis 2.33% spots of Armyworm have been observed as compared to 3.45% in last week and 0.76% spots during the same corresponding period of the last year.



Tehsil wise percentage of hot spots of army worm

Sr.	TEHSIL	%AGE	Sr.	TEHSIL	%AGE
1	SHUJABAD	15.9	12	KEHROR PACCA	4.8
2	JALAL PUR P.W	12.7	13	SAHIWAL	4.2
3	KHANEWAL	9.9	14	CHICHA WATNI	4.1
4	JAHANIAN	8.6	15	PAK PATTAN	4.0
5	KABIR WALA	7.4	16	ARIF WALA	2.2
6	MIAN CHANNU	7.1	17	OKARA	2.1
7	VEHARI	7.0	18	DEPALPUR	2.1
8	MAILSI	6.4	19	BAHAWAL PUR	1.9
9	BURE WALA	5.6	20	A.P.EAST	1.8
10	LODHRAN	5.3	21	YAZMAN	1.8
11	DUYAPUR	5.2	22	HASILPUR	1.7

Pink Bollworm: On overall Punjab basis 5.71% spots of PBW above ETL have been observed as compared to 7.02% in last week and 7.58% same corresponding period of the last year & 25.06% spots of PBW below ETL have been observed as compared to 25.76% in last week and 22.29% during same corresponding period of last year.

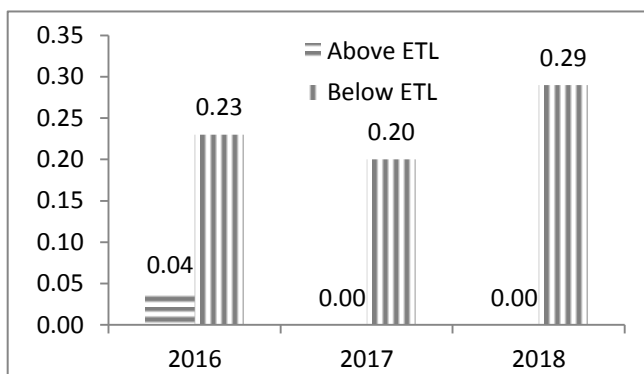


Tehsil wise percentage of hot spots of pink boll worm

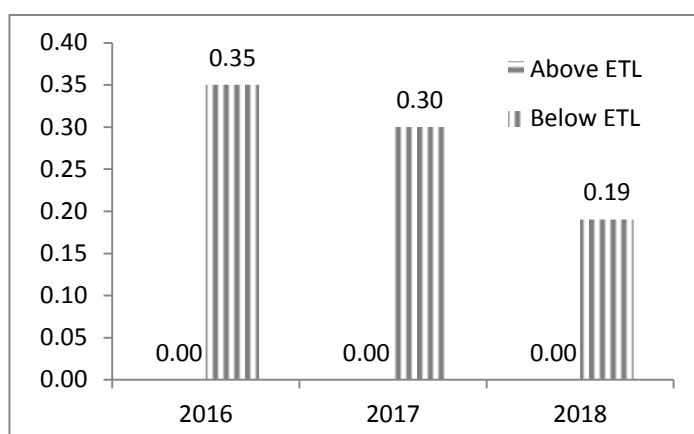
Sr.	TEHSIL	%AGE	Sr.	TEHSIL	%AGE
1	SHUJABAD	24.0	25	FORT ABBAS	6.3
2	JALAL PUR P.W	20.0	26	MINCHAN ABAD	6.0
3	KHANEWAL	18.75	27	CHISHTIAN	6.0
4	JAHANIAN	16.3	28	R.Y.KHAN	5.9
5	KABIR WALA	15.3	29	KHAN PUR	5.8
6	MIAN CHANNU	13.7	30	LIAQUAT PUR	5.5
7	VEHARI	12.7	31	SADIQ ABAD	5.3
8	MAILSI	12.5	32	D.G.KHAN	5.0
9	BURE WALA	12.1	33	TAUNSA	4.9
10	LODHRAN	12.0	34	KOT CHUTTA	4.7
11	DUYAPUR	11.5	35	MUZUFAR GARH	4.3
12	KEHROR PACCA	11.5	36	KOT ADDU	4.3
13	SAHIWAL	9.8	37	ALI PUR	3.6
14	CHICHA WATNI	9.3	38	JATOI	3.3
15	PAK PATTAN	8.9	39	LAYYAH	3.3
16	ARIF WALA	8.6	40	CHOBARA	3.2
17	OKARA	8.5	41	KAROR L.E.	3.1
18	DEPALPUR	8.3	42	RAJAN PUR	3.1
19	BAHAWAL PUR	8.0	43	JAM PUR	2.1
20	A.P.EAST	7.5	44	ROJHAN	2.0
21	YAZMAN	7.4	45	JHANG	1.9
22	HASILPUR	6.8	46	SHORKOT	1.7

23	BAHAWAL NAGAR	6.7	47	A.P.SIAL	1.1
24	HAROON ABAD	6.7			

American Bollworm: On overall Punjab basis 0.00% spots of ABW above ETL have been observed as compared to 0.04% in last week and 0.00% during same corresponding period of last year & 0.29% spots of ABW below ETL have been observed as compared to 0.23% in last week and 0.20% during same corresponding period of last year.



Spotted Bollworm: On overall Punjab basis 0.00% spots of SBW above ETL have been observed as compared to 0.00% in last week and 0.00% during same corresponding period of last year & 0.19% spots of SBW below ETL have been observed as compared to 0.35% in last week and 0.30% during same corresponding period of last year.



CLCuV: On overall Punjab basis 10.5% spots of CLCV have been observed as compared to 12.5% in last week and 10.4% 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	SHUJABAD	50.0	26	MINCHAN ABAD	12.0
2	JALAL PUR P.W	50.0	27	CHISHTIAN	11.8
3	KHANEWAL	29.4	28	R.Y.KHAN	11.6
4	JAHANIAN	29.3	29	KHAN PUR	11.1
5	KABIR WALA	22.4	30	LIAQUAT PUR	10.0
6	MIAN CHANNU	22.2	31	SADIQ ABAD	9.9
7	VEHARI	22.0	32	D.G.KHAN	8.3
8	MAILSI	22.0	33	TAUNSA	7.7
9	BURE WALA	19.2	34	KOT CHUTTA	7.5
10	LODHRAN	18.8	35	MUZUFAR GARH	7.3
11	DUYAPUR	18.5	36	KOT ADDU	7.0
12	KEHROR PACCA	18.0	37	ALI PUR	6.3
13	SAHIWAL	17.5	38	JATOI	6.3
14	CHICHA WATNI	17.4	39	LAYYAH	5.6
15	PAK PATTAN	17.3	40	CHOBARA	5.5
16	ARIF WALA	15.7	41	KAROR L.E.	5.5
17	OKARA	14.3	42	RAJAN PUR	5.0
18	DEPALPUR	14.3	43	JAM PUR	4.5
19	BAHAWAL PUR	14.0	44	ROJHAN	4.2
20	A.P.EAST	13.5	45	JHANG	4.0
21	YAZMAN	13.3	46	SHORKOT	3.3
22	HASILPUR	13.3	47	A.P.SIAL	2.8
23	BAHAWAL NAGAR	12.8	48	T.T.SINGH	2.4
24	HARROON ABAD	12.7	49	GOJRA	1.7
25	FORT ABBAS	12.5			

FORECAST FOR THE NEXT WEEK

Cotton insect pest occurrence, ecology and susceptible stages

SR. NO	INSECT	SEASONAL OCCURANCE	FAVOURABLE CONDITIONS			SUSECPTIBLE CROP STAGES
			WEATHER	TEMP.c	R. H %	
1	Whitefly	June to September	Hot & Dry	35-42	Below 50	Seedling to Maturity
2	Jassid	April to October	Hot & Humid	35-40	Above 70	Seedling to Boll opening
3	Thrips	March to September	Hot & Dry	35-50	Below 60	Seedling to Maturity
4	Aphid	May to October	Moderate	25-35	60-80	Seedling to Maturity
5	Dusky Cotton Bug	April to November	Moderate	28-40	50-80	Squaring to Harvest
6	Red Cotton Bug	September to November	Moderate	25-40	60-80	Boll opening to Maturity
7	Mealy Bug	April to September	Hot & Dry	35-40	60-80	Seedling to Maturity
8	Mites	May to September	Hot & Dry	28-40	20-60	Squaring to Harvest
9	Army worm	April to September	Mild & Humid	30-40	70-100	Squaring to Harvest
10	Cotton Boll Worm	July to September	Dry & Moderate	32-40	50-70	Flowering to Maturity
11	SBW	July to September	Mild & Humid	30-40	60-100	Flowering to Maturity
12	PBW	August to November	Moderate	32-40	60-80	Flowering to Maturity
13	Cut Worm	April to May	Moderate	35-40	60-80	Seedling

Meteorological data of the current week 2018-2017

Districts	2018				2017			
	Temperature		R.H%	Rainfall (mm)	Temperature		RH%	Rainfall (mm)
	Max.	Min.			Max.	Min.		
Multan	27.14	15.57	77.43	0.00	33.86	21.00	75.86	0.00
Khanewal	34.79	22.09	64.00	0.00	35.71	23.69	49.00	0.00
Vehari	29.57	21.29	50.57	0.00	39.00	28.00	53.57	0.00
Lodhran	33.43	20.29	53.29	0.00	35.57	20.29	51.36	0.00
Sahiwal	32.30	18.60	59.25	0.00	32.45	18.78	59.80	0.00
Pakpattan	32.25	19.50	84.50	0.00	32.13	20.63	82.50	0.00
Okara	32.40	18.80	80.00	0.00	35.50	20.20	82.00	0.00
Bahawalpur	35.44	18.53	55.57	Traces	37.07	19.70	55.57	0.00
Bahawalnagar	31.83	17.33	49.75	0.00	37.58	19.92	65.33	0.00
R.Y.Khan	36.56	18.89	53.89	0.00	38.50	18.12	56.16	0.00
D.G.Khan	34.71	19.43	48.07	0.00	36.43	20.29	49.07	0.00
M.Garh	34.14	21.69	49.54	0.00	35.78	21.64	59.35	0.00
Rajanpur	33.20	17.60	44.80	0.00	38.00	22.38	47.60	0.00

Layyah	29.57	16.68	40.71	0.00	28.00	16.42	40.85	0.00
TOT/AVG	32.67	19.02	57.95	0.00	35.40	20.79	59.14	0.00

Weather forecast for next 7 days in cotton zone

Division	Dated	22/10	23/10	24/10	25/10	26/10	27/10	28/10
Multan	Max.Temp.	33	32	33	32	32	33	31
	Min.Temp.	18	18	18	18	18	18	18
	Humidity %	19	21	23	24	23	19	13
Sahiwal	Max.Temp.	32	31	31	31	31	32	30
	Min.Temp.	16	17	17	16	16	17	18
	Humidity %	24	25	25	28	28	23	11
Bahawalpur	Max.Temp.	33	33	33	33	33	34	32
	Min.Temp.	18	19	18	18	18	18	16
	Humidity %	19	20	23	25	23	19	14
D.G. Khan	Max.Temp.	34	32	32	32	32	33	31
	Min.Temp.	16	19	19	19	19	19	19
	Humidity %	15	19	20	21	21	17	11
Average Cotton Region	Max.Temp.	32.18						
	Min.Temp.	17.79						
	Humidity %	20.46						

Summary of weather forecast

Overall weather for seven days in cotton zone during next week will remain sunny. So, it is forecasted that temperature will decrease about 1°C for next week in cotton zone (Southern Punjab).

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. 32.67 °C, Min. 19.02°C with R. humidity 57.95%) & forecast for the next week temp. Max. 32.18 °C, Min. 17.79°C with humidity 20.46%. Keeping in view above all, it is predicted that population of this pest will decrease 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.

32.67 °C, Min. 19.02°C with R. humidity 57.95%) & forecast for the next week temp. Max. 32.18 °C, Min. 17.79°C with humidity 20.46%. Keeping in view above all, it is predicted that population of this pest will decrease 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. 32.67 °C, Min. 19.02°C with R. humidity 57.95%) & forecast for the next week temp. Max. 32.18 °C, Min. 17.79°C with humidity 20.46%. 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. 32.67 °C, Min. 19.02°C with R. humidity 57.95%) & forecast for the next week temp. Max. 32.18 °C, Min. 17.79°C with humidity 20.46%. Keeping in view above all, it is predicted that population of this pest will 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. 32.67 °C, Min. 19.02°C with R. humidity 57.95%) & forecast for the next week temp. Max. 32.18 °C, Min. 17.79°C with humidity 20.46%. Keeping in view above all, it is predicted that population of this pest will decrease 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. 32.67 °C, Min. 19.02°C with R.

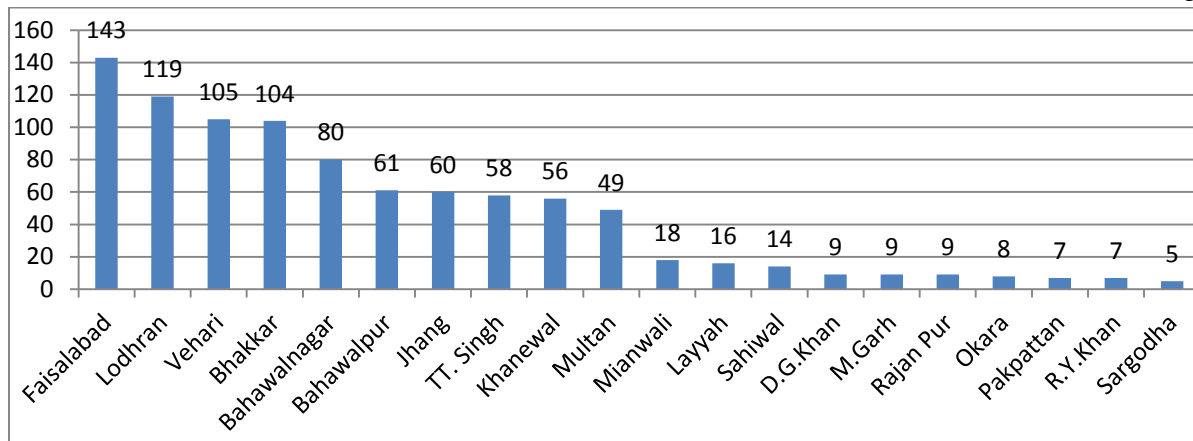
humidity 57.95%) & forecast for the next week temp. Max. 32.18 °C, Min. 17.79°C with humidity 20.46%. Keeping in view above all, it is predicted that population of this pest may increase during the coming week.

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 (temp. 32.67 °C, Min. 19.02°C with R. humidity 57.95%) & forecast for the next week temp. Max. 32.18 °C, Min. 17.79°C with humidity 20.46%. It is predicted that population of this pest will increase on cotton.

Moth Catches in Pheromone Traps during 3rd Week of October, 2018

Moth Catches in Pheromone Traps During 3 rd Week of October, 2018					
District	Traps Installed	2018		2017	
		Moth catches/Trap/week	Av. Moth catches/Trap/night	Moth catches/Trap/week	Av. Moth catches/Trap/night
Multan	6	49	1.17	63	1.50
Khanewal	8	56	1.00	118	2.11
Vehari	6	105	2.50	107	2.55
Lodhran	6	119	2.83	76	1.81
Sahiwal	5	14	0.50	20	0.57
Pakpattan	4	7	0.25	22	0.79
Okara	4	8	0.29	20	0.71
Bahawalpur	8	61	1.09	73	1.30
Bahawalnagar	10	80	1.14	82	1.17
R.Y.Khan	8	7	0.13	33	0.59
D.G.Khan	4	9	0.32	5	0.18
M.Garh	8	9	0.16	1	0.02
Rajan Pur	6	9	0.21	6	0.14
Layyah	6	16	0.38	10	0.24
Sargodha	1	5	0.36	30	4.29
Mianwali	2	18	0.64	32	2.29
Bhakkar	4	104	1.86	108	3.86
Faisalabad	5	143	4.09	43	1.23
TT. Singh	6	58	1.38	7	0.17
Jhang	4	60	2.14	15	0.54
TOT/AVG	111	937	1.12	871	1.30
<i>Note. 3 moth catches on 3 consecutive nights in a trap is considered as ETL</i>					

District wise PBW moth catches graph



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. 32.67 °C, Min. 19.02°C with R. humidity 57.95%) & forecast for the next week temp. Max. 32.18 °C, Min. 17.79°C with humidity 20.46%. It is predicted that population of this pest will decrease on cotton crop.

Moth catches on light traps during 3rd week of October, 2018

Moth Catches on Light Traps/Trap/week During 3 rd Week of October, 2018				
District	Traps Installed	A.B.W	S.B.W	Armyworm
Multan	3	0	0	16
Khanewal	4	0	0	16
Vehari	3	0	0	0
Lodhran	3	1	0	12
Sahiwal	2	2	0	4
Pakpattan	2	0	0	2
Okara	2	0	0	4
Bahawalpur	4	2	3	5
Bahawalnagar	5	1	1	3
R.Y.Khan	4	0	0	9
D.G.Khan	2	0	0	0
M.Garh	4	3	0	7
Rajan Pur	3	2	0	0
Layyah	3	0	0	7

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. 32.67 °C, Min. 19.02°C with R. humidity 57.95%) & forecast for the next week temp. Max. 32.18 °C, Min. 17.79°C with humidity 20.46%. Due to cultivation of more BT varieties, it is predicted that population of this pest will decrease 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 32.67 °C, Min. 19.02°C with R. humidity 57.95%) & forecast for the next week temp. Max. 32.18 °C, Min. 17.79°C with humidity 20.46%. Keeping in view above all, it is predicted that population of this pest will decrease during the coming week.

CLCuV: On overall Punjab basis spots of CLCV have been decreased as compared to in last week and same corresponding period of the last year. The incidence of this disease is expected to decrease on cotton crop 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	Mulbery		
	Peas	Papaya		
	Potato			
	Onion			
	Spinach			

JASSID MANAGEMENT

1. Eradicate weeds.
2. Conduct Pest Scouting at least twice a week.
3. Use *Chrysoperla* Cards @ 80-90 cards per acre having 20-25 eggs on each card which are available at AARI Faisalabad, Sahiwal, Okara and Vehari.
(Repeat this process after every two weeks).

THRIPS MANAGEMENT

1. Conduct Pest Scouting regularly at least twice a week.
2. Avoid intercropping of cotton crop with vegetables.
3. Control weeds in and outside the field.

MEALY BUG MANAGEMENT

1. Visit the fields daily to detect the infestation for effective management of mealy bug well in time.
2. Keep field and water courses etc. free from weeds especially Itsit & Hazaardani.

3. To avoid its shifting from one place to another, keep the horticultural nurseries free from its infestation. Spray such infested nurseries before shifting the plants.
4. Uproot and keep the infested plants gently in plastic bags and bury in the soil outside the field.
5. Avoid water stress to the plants.
6. Avoid repeated visits of workers from infested fields to healthy fields.

Pesticides recommended for mealy bug

S#	Common Name	Brand Name	Dose/Acre
1	Dimethoate 40% + Diver (Mineral oil) 97%	Denadim, Progress, Casper	200 ml + 1000 ml
2	Profenofos 50%+ Diver (Mineral oil) 97%	Curacron, Blast	200ml + 1000 ml
3	Chlorpyrifos 40 EC+ Diver (Mineral oil) 97%	Lorsban, Larvae	200ml+ 1000 ml
4	Profenofos 50EC		800 ml
5	Chlorpyrifos 40 EC		1000 ml
6	Carbosulfan 20EC	Advantage	500 ml
7	Methidathion 40 EC	Supracide	400 ml
8	Methomyl 42SP	Lannate	300 gm
9	Profenofos + Lambda 61.5 EC	Border	500 ml

Alternate host plants of cotton mealy bug

Crops	Vegetables	Ornamentals	Weeds	Orchards
Sunflower	Okra	China Rose	Hazar Dani	Citrus
Tobacco	Brinjal	Huddle	Amarantus	Mulberry
Jantar	Tomato	Cotton Rose	Bhakra	Ficus
Sesame	Chillies	Gulchain	Mako	Ber
	Pumpkin	Lantana	Sueda	
		Din Ka Raja	Itsit	
		Rat Ki Rani	Karund	
		Anthorium	Aksen	
		Gul-e-Daudi	Bathu	
		Gainda	Puth Kanda	
			Kanghi	

MANAGEMENT OF DUSKY COTTON BUG

1. Eradicate weeds.
2. Conduct Pest Scouting at least twice a week.
3. Remove alternate host plants

MANAGEMENT OF ARMY WORM

1. Keep the fields clean from weeds especially Its it which is a preferred host of armyworm.
2. Avoid sowing of Jantar near cotton fields.
3. Regular pest scouting at least twice a week.
4. Hand picking and destruction of egg masses at initial stage as initially its attack starts in patches and is clearly visible.

Pesticides recommended for army worm

S#	Common Name	Brand Name	Dose/Acre
1	Lufenuron 5 EC	Match, Drone, Catch, Rozol, Snatch, Track, Ardent	200 ml
2	Emamectin Benzoate 1.9%EC	Proclaim, Timer, Victory, Smash, Tycon, Wel Star, Wright, Rider	250 ml
3	Tebufenazide 20%WP	Falcon, Top Gun	350 gm
4	Flubendamide 480 SC	Belt	25-50 ml
5	Methoxyfenozide 240 SC	Runner	200 ml
6	Chlorantraniliprole 20 SC	Coragen	50 ml
7	Spintoram 120 SC	Radiant	100 ml

CLCuV MANAGEMENT

1. Keep Cotton fields free from all kinds of weeds.
2. Eradicate other alternate host plants of CLCuV and dispose them off carefully.
3. Thinning out and destruction of Virus affected plants.
4. Remove CLCuV effected plants in less than 60 DAS (Days after sowing) crop.
5. Hoeing after each irrigation or rain at wattar condition till canopies permit.

6. Apply post emergence Glyphosate for both broad and narrow leaved weeds and Glyphosate for grassy weeds with shield and use Flat Fan Nozzle, if needed.
7. Irrigate the fields when needed keeping in view weather conditions e.g. temperature, rainfall, soil water holding capacity and plant need.
8. Balanced use of Fertilizer i.e. N.P.K.
9. Keep transmission vector (whitefly) at the low ebb

Alternate host plants of CLCuV

Crops	Vegetables	Ornamentals	Weeds
Sunflower	Okra	Gurhal	Leh
Melon	Brinjal	Chambeli	Lehli
Tobacco	Chillies		Mako
	Tomato		Maina
	Potato		Karund/Bathu
	Cucumber		Gardenia
			Hazardani
			Rattan jot
			Sun Kukra

Economic threshold levels of cotton pests

Insect pests	Economic threshold levels
Jassid	1 Adult or Nymph per leaf
Whitefly	5 Adults or Nymphs or both per Leaf
Thrips	8-10 Adults or Nymphs per Leaf
Mealy bug	0 (on appearance)
Mites	On damage appearance
Spotted Boll worm	3 Larvae/ 25 plants.
Pink Boll worm	5 Larvae /100 bolls.
American boll worm	5 brown eggs or 3 small larvae or both 5 per 25 plants on non Bt varieties. 2 larvae of 2 nd instar per 25 plants on Bt varieties.
Army worm	0 (On appearance)
Aphid	Spray on visible damage on top terminals.
Dusky Cotton bug	10 per leaf/bud