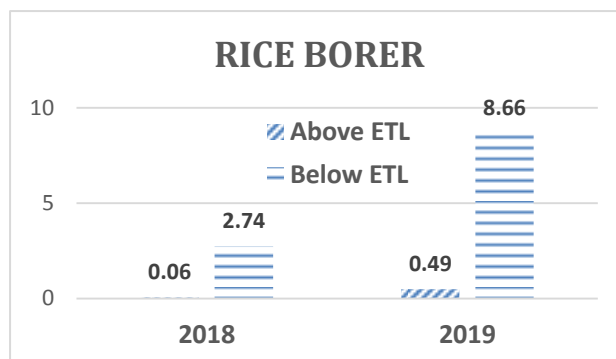


PEST SITUATION ON RICE CROP IN PUNJAB DURING 2ND WEEK OF OCTOBER, 2019

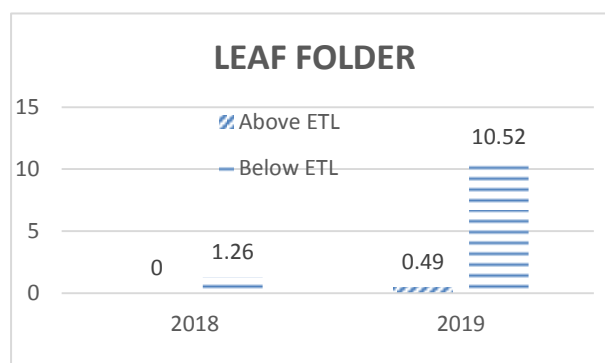
RICE BORERS: On overall Punjab basis 0.49% spots above ETL of Rice Borers have been observed as compared to 0.06% spots during the same corresponding period of last year, whereas 8.66% spots below ETL have been observed as compared to 2.74% spots during the same corresponding period of last year. It is predicted that its infestation may increase during next week.



District wise percentage of hot spots of Rice Borer

Sr.	DISTRICT	%AGE
1	OKARA	5.1
2	BAHAWALNAGER	5.0
3	BAHAWALPUR	4.6
4	M.B.DIN	1.4
5	SHEIKHUPURA	0.8

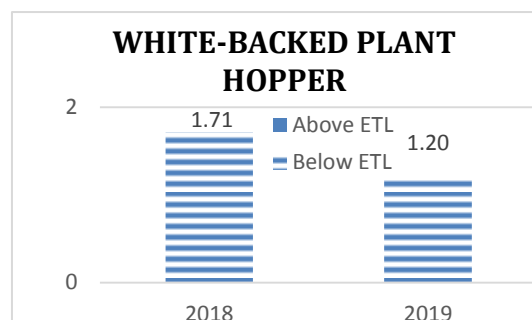
RICE LEAF FOLDER: On overall Punjab basis 0.49% spots above ETL of Rice Leaf folder have been observed as compared to 0.00% spots during the same corresponding period of last year, whereas 10.52% spots below ETL have been observed as compared to 1.26% spots during the same corresponding period of last year. As this crop is at maturing stage, hence its infestation will decrease during next week.



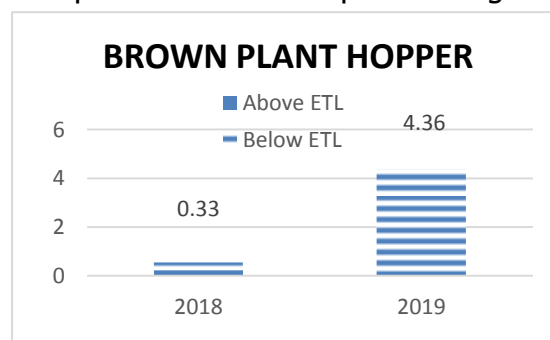
District wise percentage of hot spots of Rice Leaf Folder

Sr.	DISTRICT	%AGE	Sr.	DISTRICT	%AGE
1	KHANEWAL	11.1	5	CHINIOT	2.4
2	LAYYAH	10.0	6	HAFIZABAD	0.9
3	D.G.KHAN	5.9	7	SARGODHA	0.9
4	BAHAWALNAGER	2.5	8	SHEIKHUPURA	0.8

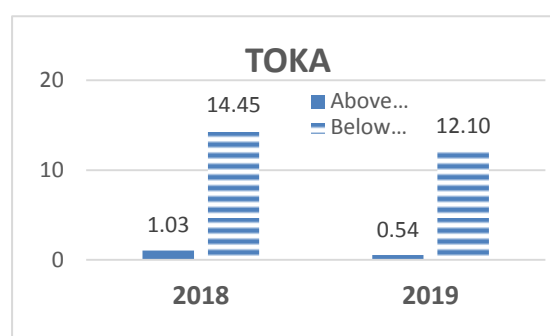
WHITE-BACKED PLANT HOPPER: On overall Punjab basis 0.00% spots above ETL of White-back Plant hopper have been observed as compared to 0.00% spots during the same corresponding period of last year, whereas 1.20% spots below ETL have been observed as compared to 1.71% spots during the same corresponding period of last year. It is predicted that its infestation may increase during next week.



BROWN PLANT HOPPER: On overall Punjab basis 0.00% spots above ETL of Brown Plant hopper have been observed as compared to 0.23% spots during the same corresponding period of last year, whereas 4.36% spots below ETL have been observed as compared to 0.33% spots during the same corresponding period of last year. It is predicted that its infestation may increase during next week.



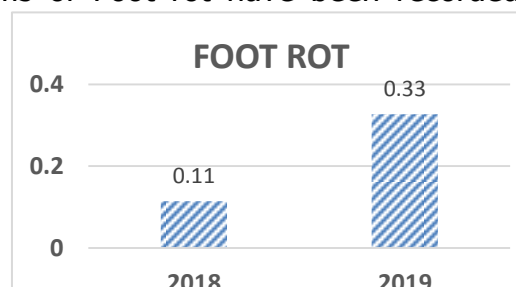
TOKA: On overall Punjab basis 0.54% spots above ETL of Toka have been observed as compared to 1.03% spots during the same corresponding period of last year, whereas 12.10% spots below ETL have been observed as compared to 14.45% spots during the same corresponding period of last year. As this crop is at maturing stage, hence its infestation will decrease during next week.



District wise percentage of hot spots of Rice Toka

Sr.	DISTRICT	%AGE	Sr.	DISTRICT	%AGE
1	LAHORE	4.0	4	NAROWAL	1.3
2	M.B.DIN	2.8	5	SHEIKHUPURA	0.8
3	FAISALABAD	1.6			

FOOT ROT: On overall Punjab basis symptoms of Foot rot have been recorded, 0.33% spots during the week under report as compared to 0.11% spots during the same corresponding period of last year. As this crop

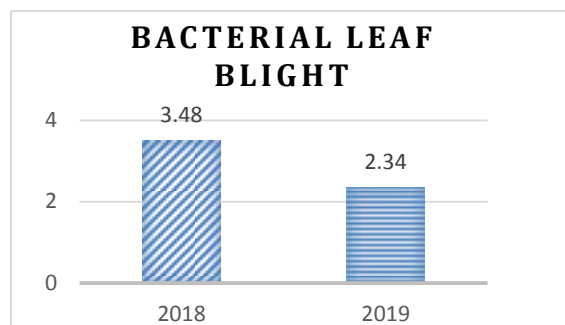


is at maturing stage, hence its infestation will decrease during next week.

District wise percentage of hot spots of Foot rot

Sr.	DISTRICT	%AGE
1	BAHAWALNAGAR	15

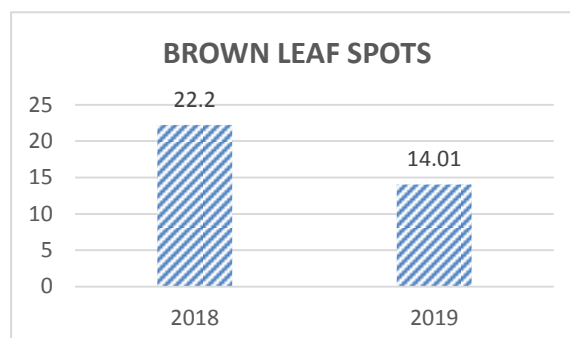
BACTERIAL LEAF BLIGHT: On overall Punjab basis symptoms of Bacterial Blight have been recorded on 2.34% spots during the week under report as compared to 3.48% during the same corresponding period of last year. As this crop is at maturing stage, hence its infestation will decrease during next week.



District wise percentage of hot spots of Bacterial leaf blight

Sr.	DISTRICT	%AGE	Sr.	DISTRICT	%AGE
1	RY Khan	53.3	7	GUJRAT	3.0
2	M.B.DIN	16.7	8	NANKANA SAHIB.	2.9
3	LODHRAN	5.6	9	T.T. SINGH	2.6
4	VEHARI	4.0	10	SIALKOT	1.9
5	SHEIKHUPURA	3.4	11	KASUR	1.7
6	FAISALABAD	3.3	12	SARGODHA	1.7
			13	NAROWAL	1.7

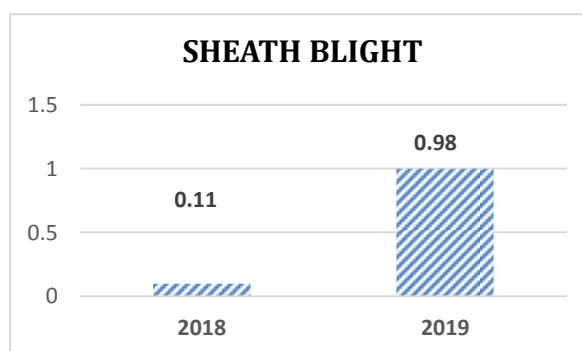
BROWN LEAF SPOTS: On overall Punjab basis symptoms of Brown Leaf Spot (BLS) have been recorded on 14.01% spots during the week under report as compared to 22.22% during the same corresponding period of last year. It is predicted that its infestation may increase during next week.



District wise percentage of hot spots of Brown Leaf Spots

Sr.	DISTRICT	%AGE	Sr.	DISTRICT	%AGE
1	KHANEWAL	100.0	11	GUJRANWALA	13.6
2	KHUSHAB	36.4	12	T.T. SINGH	10.3
3	M.B.DIN	34.7	13	SARGODHA	9.5
4	SHEIKHUPURA	26.9	14	NANKANA SAHIB.	7.7
5	NAROWAL	22.2	15	CHINIOT	7.1
6	LAHORE	20.0	16	PAKPATTAN	6.0
7	SIALKOT	19.6	17	VEHARI	4.0
8	HAFIZABAD	16.7	18	SAHIWAL	3.6
9	LODHRAN	16.7	19	FAISALABAD	3.3
10	GUJRAT	15.2	20	KASUR	2.6
			21	BAHAWALNAGER	2.5

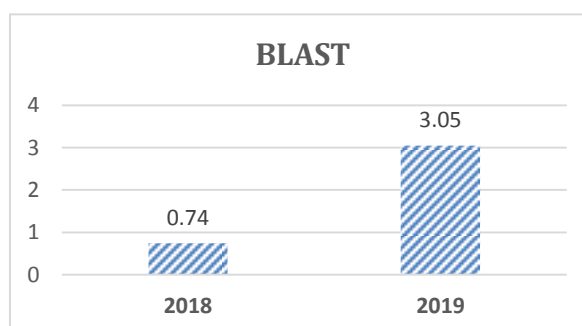
SHEATH BLIGHT: On overall Punjab basis symptoms of Sheath Blight have been recorded on 0.98% spots during the week under report as compared to 0.11% during the same corresponding period of last year. As this crop is at maturing stage, hence its infestation will decrease during next week.



District wise percentage of hot spots of Sheath Blight

Sr.	DISTRICT	%AGE
1	BAHAWALNAGER	27.5
2	BAHAWALPUR	4.6
3	SARGODHA	1.7
4	LAHORE	1.3
5	SIALKOT	0.9

BLAST: On overall Punjab basis symptoms of Rice Blast have been recorded on 3.05% spots during the week under report as compared to 0.74% during the same corresponding period of last year. It is predicted that its infestation may increase during next week.



District wise percentage of hot spots of Rice Blast

Sr.	DISTRICT	%AGE	Sr.	DISTRICT	%AGE
1	D.G.KHAN	35.3	7	T.T. SINGH	5.1
2	SIALKOT	15.0	8	OKARA	5.1
3	SARGODHA	12.1	9	PAKPATTAN	4.0
4	BAHAWALNAGER	7.5	10	KASUR	2.6
5	SAHIWAL	7.1	11	M.B.DIN	1.4
6	BAHAWALPUR	6.2	12	SHEIKHUPURA	0.8

Meteorological data of the current week 2019-2020

METEOROLOGICAL DATA FOR THE 2ND WEEK OF OCTOBER 2019, RICE ZONE								
Districts	2019				2018			
	Temperature		R.H%	Rainfall (mm)	Temperature		RH%	Rainfall (mm)
	Max.	Min.			Max.	Min.		
Gujranwala	35.5	30.0	60.0	0.0	34.5	39.9	62.1	0.0
Hafizabad	36.0	19.0	69.2	0.0	34.3	21.9	67.8	10.0
Sialkot	35.1	30.8	59.6	0.0	34.0	30.0	61.0	0.0
Narowal	30.1	17.3	0.0	79.9	30.4	18.3	71.7	6.0
Gujrat	34.0	24.0	78.0	0.0	32.0	22.0	74.0	0.0
M.B.Din	31.0	15.0	60.0	0.0	30.5	14.5	60.5	0.0
Lahore	31.6	20.5	67.4	0.0	32.1	19.4	63.0	0.0
Sheikhupura	30.5	21.3	60.2	0.0	32.5	21.2	56.0	2.0
Ferozwala	31.9	20.9	58.1	0.0	33.3	19.3	61.4	0.0
Nankana	32.7	21.3	40.7	0.0	31.3	19.9	63.8	0.0
Kasur	32.9	27.9	63.7	0.0	32.9	18.7	61.7	0.0
Faisalabad	32.3	21.4	78.6	39.1	34.4	20.9	71.4	84.6
Jhang	36.2	25.3	56.8	0	37.14	26.57	60.86	0
Toba Tek Singh	31.5	20.0	84.4	0.0	34.3	19.7	80.0	0
Sargodha	44.8	31.0	27.0	0.0	43.0	30.0	31.0	0.0
Khushab	31.8	18.2	68.2	0.0	30.8	17.0	69.8	3.0
Multan	29.2	20.3	79.5	0.0	27.1	18.6	76.6	0.0
Khanewal	29.9	20.1	76.9	5.0	34.7	23.2	60.6	0.0
Vehari	30.7	22.7	79.8	0.0	31.4	22.5	48.8	0.0
Lodhran	30.9	21.3	78.8	0.0	33.9	21.0	53.9	0.0
Sahiwal	32.1	20.1	67.8	3.0	33.5	19.8	60.0	0.0
Pakpattan	34.4	21.7	66.0	0.0	35.9	22.0	62.0	0.0
Okara	34.0	26.0	72.0	1.0	36.0	26.5	65.0	0.0
Bahawalpur	33.7	20.0	66.2	40.2	35.2	20.7	60.6	41.6
Bahawalnagar	32.8	21.7	62.4	0.3	37.6	25.4	56.8	0.0
R.Y.Khan	35.8	22.0	80.3	0.0	37.4	20.8	79.3	0.0
D.G. Khan	37.0	22.6	49.8	0.0	34.3	21.7	50.1	0.0
Muzaffar Garh	34.2	24.6	50.3	8.8	34.1	21.6	55.7	0.0
Rajanpur	36.1	21.3	59.6	0.0	36.0	21.5	48.2	0.0
Layyah	33.5	19.7	60.5	0.0	39.2	22.5	52.8	0.0
TOT/AVG	33.41	22.26	62.72	5.91	34.13	22.24	61.55	4.907

Weather forecast for next 7 day in rice zone

Division	Dated	15-Oct	16-Oct	17-Oct	18-Oct	19-Oct	20-Oct	21-Oct
Faisalabad	Max.Temp.	36	36	33	30	30	34	32
	Min.Temp.	22	22	22	20	18	18	20
	Humidity %	25	25	33	42	39	27	14
Gujranwala	Max.Temp.	34	34	33	27	30	33	31
	Min.Temp.	20	21	20	18	17	16	17
	Humidity %	33	31	32	50	40	28	16
Lahore	Max.Temp.	33	33	32	28	28	30	31
	Min.Temp.	20	20	20	19	18	17	19
	Humidity %	43	44	48	70	60	49	15
Sargodha	Max.Temp.	35	36	33	28	30	33	31
	Min.Temp.	22	21	22	18	17	16	16
	Humidity %	29	27	32	55	39	29	16
Multan	Max.Temp.	37	37	36	33	32	35	33
	Min.Temp.	21	21	21	20	18	18	19
	Humidity %	23	21	23	30	34	23	12
Average Rice Region	Max.Temp.	32.4						
	Min.Temp.	19.2						
	Humidity %	33						

Summary of weather forecast

Overall weather for seven days in rice zone during next week will remain less hot than previous week, cloudy and more chances of precipitation with an average 3-4°C decrease in temperature.

Forecast of Rice Pests:

Borer: This pest flourishes best in warm humid climate with optimum temperature 17-30 °C with relative humidity between 45-80%. The current weather conditions on overall Punjab basis (temp. Max. 33.4 °C, Min. 22.2 °C with R. humidity 62.7%) & forecast for the next week temp. Max. 32.4 °C, Min. 19.2 °C with R. humidity 33%). Keeping in view the temperature for current week and weather forecast of next week, it is predicted that population of this pest may decrease during the coming week as the temperature remain favorable for the development of this pest.

Leaf Folder: This pest flourishes best in warm humid climate with optimum temperature 25-30°C. The current weather conditions on overall Punjab basis (temp. Max. 33.4 °C, Min. 22.2 °C with R. humidity 62.7%) & forecast for the next week temp. Max. 32.4 °C, Min. 19.2 °C with R. humidity 33%). Keeping in view the temperature for current week and weather forecast of next week, it is predicted that

population of this pest may decrease during the coming week as the temperature remain favorable for the development of this pest.

White-backed plant hopper: This pest flourishes best in warm humid climate with optimum temperature 25-29°C with relative humidity between 80-90%.The current weather conditions on overall Punjab basis ((temp. Max. 33.4 °C, Min. 22.2 °C with R. humidity 62.7%) & forecast for the next week temp. Max. 32.4 °C, Min. 19.2 °C with R. humidity 33%). Keeping in view the temperature for current week and weather forecast of next week, it is predicted that population of this pest may increase during the coming week as the temperature remain favorable for the development of this pest.

Brown plant hopper: This pest flourishes best in warm humid climate with optimum temperature 28-30°C with relative humidity below 80-90%.The current weather conditions on overall Punjab basis ((temp. Max. 33.4 °C, Min. 22.2 °C with R. humidity 62.7%) & forecast for the next week temp. Max. 32.4 °C, Min. 19.2 °C with R. humidity 33%). Keeping in view the temperature for current week and weather forecast of next week, it is predicted that population of this pest may increase during the coming week as the temperature remain favorable for the development of this pest.

Toka: This pest flourishes best in warm humid climate with optimum temperature 24-40°C with relative humidity between 30-80%.The current weather conditions on overall Punjab basis ((temp. Max. 33.4 °C, Min. 22.2 °C with R. humidity 62.7%) & forecast for the next week temp. Max. 32.4 °C, Min. 19.2 °C with R. humidity 33%). Keeping in view the temperature for current week and weather forecast of next week, it is predicted that population of this pest may increase during the coming week as the temperature remain favorable for the development of this pest.

Foot rot: High humidity and cloudy weather during heading stage are favorable for the development of foot rot of rice. The fungus have a wide range of temperature for optimum growth which is between 30-35 °C. The current weather conditions on overall Punjab basis (temp. Max. 33.4 °C, Min. 22.2 °C with R. humidity 62.7%) & forecast for the next week temp. Max. 32.4 °C, Min. 19.2 °C with R. humidity 33%). Keeping in view the temperature for current week and weather forecast of next week, it is predicted that population of this pest may increase during the coming week as the temperature remain favorable for the development of this disease.

Bacterial Leaf Blight: Heavy rain, heavy dew, flooding, deep irrigation water are favorable factors for the development of disease. Temperature for optimum growth is between 25-34 °C with relative humidity above 70%. The current weather conditions on overall Punjab basis ((temp. Max. 33.4 °C, Min. 22.2 °C with R. humidity 62.7%) & forecast for the next week temp. Max. 32.4 °C, Min. 19.2 °C with R. humidity 33%). Keeping in view the temperature for current week and weather forecast of next week, it is predicted that population of this pest may increase during the coming week as the temperature remain favorable for the development of this disease.

Brown Leaf spots: Non-flooded and nutrient deficient soils or soils with accumulation of toxic substances are favorable for the development of disease. Temperature for optimum growth is between 16-36 °C with relative humidity from 86-100%. The current weather conditions on overall Punjab basis ((temp. Max. 33.4 °C, Min. 22.2 °C with R. humidity 62.7%) & forecast for the next week temp. Max. 32.4 °C, Min. 19.2 °C with R. humidity 33%). Keeping in view the temperature for current week and weather forecast of next week, it is predicted that population of this pest may increase during the coming week as the temperature remain favorable for the development of this disease.

Sheath Blight: Crop plants during rainy season are more vulnerable to the disease. Temperature for optimum growth is between 28-32 °C with relative humidity from 85-100%. The current weather conditions on overall Punjab basis ((temp. Max. 33.4 °C, Min. 22.2 °C with R. humidity 62.7%) & forecast for the next week temp. Max. 32.4 °C, Min. 19.2 °C with R. humidity 33%). Keeping in view the temperature for current week and weather forecast of next week, it is predicted that population of this pest may increase during the coming week as the temperature remain favorable for the development of this disease.

Blast: Intermittent drizzles, cloudy weather, more of rainy days, Low night temperature and longer duration of dew are favorable factors for the development of disease. Temperature for optimum growth is between 25-30 °C with relative humidity between 93-99%. The current weather conditions on overall Punjab basis ((temp. Max. 33.4 °C, Min. 22.2 °C with R. humidity 62.7%) & forecast for the next week temp. Max. 32.4 °C, Min. 19.2 °C with R. humidity 33%). Keeping in view the temperature for current week and weather forecast of next week, it is predicted that

population of this pest may increase during the coming week as the temperature remain favorable for the development of this disease.

RECOMMENDATION

RICE BORER MANAGEMENT

- Use resistant varieties.
- Discard the infested plants while transplanting.
- Ensure proper timing of planting and synchronous planting, harvest crops at ground level to remove the larvae in stubble, remove stubble and volunteer rice, plow and flood the field.
- At seedbed and transplanting, handpick and destroy egg masses.
- Raise level of irrigation water periodically to submerge the eggs deposited on the lower parts of the plant.
- Clipp off the tips of the seedlings at the time of transplanting because the eggs of yellow and white stem borers are laid near the tip of the leaf blade. It will reduce a considerable number of egg masses and young larvae of the stem borers.
- Install light traps up to September to monitor moth population of stem borers.
- Use balanced Fertilizers (NPK) within 45 days after transplanting of nursery.
- Complete application of urea up to 31st August because due to late application of Urea, the plant becomes succulent and dark-green which attracts the insects, especially stem borers and leaf roller and helps in their rapid multiplication.

BROWN LEAF SPOT MANAGEMENT

- Use resistant varieties.
- Contact your local agriculture office for an up-to-date list of available varieties.
- Follow rice with a different crop, or fallow period.
- Avoid ratooning.
- Flood and plow field after harvesting if possible.

- Remove grassy weeds from fields and borders.
- Reduce density of planting.

FOOT ROT SPOT MANAGEMENT

- Avoid sowing of seed obtained from infected crop.
- Uproot the diseased plants and destroy them.
- Use Potash 1 Bag within 14 days.

BROWN LEAF SPOT MANAGEMENT

- Control the pest with one of the following pesticides

S#	Common Name	Brand Name	Dose / Acre
1	Propineb 70 WP	Gift, Cover, Protest	800 gm
2	Mancozeb 80 WP	Shelter, Dithane-M	800 gm
3	Propiconazole 25 EC	Tilt	80 ml

BACTERIAL LEAF BLIGHT MANAGEMENT

- Use disease free seeds for next crop.
- Spray copper based fungicides.

PADDY BLAST MANAGEMENT

- For leaf blast, reflood if field has been drained. Maintain water level at 3-4 inches to ensure that soil is covered.
- Control the pest with one of the following pesticides

S#	Common Name	Brand Name	Dose / Acre
1	Kasugamycin 6% WP	Fork	250 gm
2	Trifloxystrobin+Tebuconazole 75%WP	Nativo	65 gm
3	Azoxystrobin 25 % SC	Primacy	200 ml
4	Difenoconazole 250 EC	Score	125 ml

ECONOMIC THRESHOLD LEVELS OF RICE PESTS

INSECT PESTS	ECONOMIC THRESHOLD LEVELS
Borers (White, Yellow & Pink)	0.5% attack on rice nursery while 8-10 Moth/Trap/Night & 5% dead heart on rice crop.
Toka	3 per net on rice nursery & 5 on rice crop.
Leaf Folder	2 rolled leaves per plant in July-August & 3 rolled leaves per plant in September-October.
Brown Plant Hopper	15 Nymphs or Adults per plant in July-August & 20 Nymphs or Adults per plant in September-October. Or 7-10 Nymphs or Adults per net
White Backed Plant Hopper	15 Nymphs or Adults per plant in July-August & 20 Nymphs or Adults per plant in September-October. Or 7-10 Nymphs or Adults per net
Hispa	1 per plant
Diseases	On appearance