

Prevalance of insect pests on rice in North Eastern Madhya Pradesh

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ABSTRACT

Survey for spread of insect-pests in rice was made in farmer's fields and Government Farms in Rewa district of North Eastern Madhya Pradesh for two years. In all, 12 insect pests were observed in the rice fields of surveyed area. Out of them, 8 insects were found as serious pests based on economic thresh hold limit. Among them, gundhi bugs, white backed planthoppers (WBPH), grasshoppers and stem borers proved to be regular occurrence in descending order, while armyworm, caseworm and rice hispa were sporadic pests.

Key words: rice, insect pests, surveillance, Madhya Pradesh

Rice is grown under different agro-ecosystems such as bunded uplands and water logged lowlands mostly under rainfed conditions. The rainfall of the rice growing region varies from 1000 to 1500 mm. Crop varieties of different duration viz., early (less than 110 days), medium (110 to 125 days) and late (above 125 days) are grown by direct seeding in dry or wet fields and broadcast seeding of sprouted seeds in puddle fields. Transplanting of rice is practiced only in about 10% of the total rice acreage of Madhya Pradesh. The productivity of rice has shown rising trend after introduction of high yielding dwarf varieties, while infestation of large number of insect-pests has increased.

The information on site specific pest incidence weather conditions are meager. Hence, the present investigation on a surveillance of insect pests has been undertaken in rice to take efficient pest management measures.

The survey on occurrence and spread of insect pests on rice was made in the farmer's fields and Government Farms in Rewa district of Madhya Pradesh during wet season. Five villages were selected in each of the 8 blocks of the district for the continuous survey programme. Five fields were selected in each marked villages for recording the data. One round of survey in all the selected villages of each block was completed in about 8 days and again it was repeated at fortnightly

intervals. During the survey, information on crop varieties, sowing time, sowing methods, fertilizer application, irrigation, weed control and insect pest status were recorded from each field.

Twelve insect pests were found damaging rice fields of different blocks during wet season. Gundhi bug > WBPH > grasshopper > stem borer were regular pests, while rice hispa > armyworm > horned caterpillar > rice caseworm were sporadic pests (Table 1).

Infestation of WBPH was seen from early stage of the crop and continued till the reproductive phase with peak infestation in one month old crop in all high yielding varieties at all locations (Table 2). The infestation of stem borers was also observed from very early stage of the crop and continued till flowering stage. Its damage did not appear on local varieties, but in high yielding dwarf varieties the infestation was more. It seriously damaged almost all varieties a about 30 to 60 –days after sowing old crop. Normally, gundhi was observed during mid growth stage of high yielding varieties 30 to 45-days after sowing. The population increased just after flowering of the crop. The extent of its damage varied among the varieties as well as localities. Rice grasshopper was observed during both the years in well manured crop during entire growing season in both years. The green leaf hopper (GLH) observed was noted on variety in Kranti in 6 blocks of the district.

Table 2. Mean population/m² of major insect-pest on different rice variety at various growth stages.

Treatment	WBPH		GLH		Grasshopper		Horned caterpillar		Rice hispa		Gundhibug		Amyworm		Stem borer	
	30	60	30	60	30	60	30	60	30	60	30	60	30	60	30	60
	DAS	DAS	DAS	DAS	DAS	DAS	DAS	DAS	DAS	DAS	DAS	DAS	DAS	DAS	DAS	DAS
Rice cultures																
DS IR-36 (F)	76.60	34.23	47.50	73.93	3.98	5.16	4.28	5.83	9.0	16.40	15.64	19.32	5.25	2.82	1.06	1.97
DS IR-36 (UF)	29.20	12.87	34.20	51.53	3.73	4.10	2.19	3.57	5.17	9.30	10.32	14.00	3.45	1.23	0.80	1.56
Lehi IR-36 (F)	67.53	53.50	40.30	72.65	3.74	4.82	4.63	5.85	10.25	15.43	14.32	20.00	4.20	1.60	1.19	2.09
DS IR-64 (UF)	53.23	45.99	39.71	60.10	3.90	4.95	3.20	0.07	2.237	3.90	11.32	15.64	3.38	1.30	1.16	1.81
DS Local (UF)	6.43	8.85	24.95	8.98	3.94	4.93	1.21	2.26	0.30	0.45	2.00	3.00	3.50	1.65	0.16	0.37
DS Kalinga-3 (F)	50.67	42.90	5.28	13.41	3.53	4.00	0.88	0.77	0.00	0.00	1.64	2.32	2.17	0.70	0.37	0.63
TR Kranti (F)	83.11	74.40	58.86	157.16	4.93	5.18	6.60	8.93	6.00	11.90	1.64	2.60	6.86	1.54	1.38	0.93
SEm±	6.50	4.82	3.99	9.05	0.62	0.93	0.40	0.54	0.59	1.06	2.60	3.36	0.07	0.16	0.21	0.34
CD (p=0.05)	18.40	13.1	11.29	25.95	-	NS	0.17	1.59	1.71	3.04	7.40	9.60	2.20	0.4	0.62	0.99
Blocks																
Maugani	102.12	36.96	29.21	62.63	3.08	4.28	4.05	4.79	5.81	12.41	6.56	8.28	3.1	1.13	0.81	1.58
Hanumana	72.80	34.90	28.37	54.68	3.39	4.80	3.53	7.09	3.08	14.71	8.00	9.00	4.91	4.56	1.02	1.59
Naigarli	12.87	30.86	0.00	0.00	2.82	4.85	2.26	5.21	2.18	5.69	10.84	11.44	0.00	0.00	0.68	1.37
Rapur –Kanchuliya	21.25	5.52	39.30	58.52	3.35	4.54	3.53	4.47	4.33	7.20	6.56	11.12	0.00	0.00	0.80	1.31
Rewa	74.97	47.25	38.06	92.45	4.19	6.02	4.01	5.78	0.00	5.63	9.44	13.4	4.80	2.16	2.30	1.91
Sirmour	41.78	31.10	45.02	54.43	2.25	3.43	-	-	0.00	4.08	0.00	0.00	0.00	0.00	0.54	0.98
Teothar	55.15	48.29	41.97	87.13	2.57	3.56	-	-	0.00	0.00	0.00	0.00	2.86	0.86	0.62	0.30
SE±	2.49	1.76	0.31	0.35	0.19	0.20	0.25	0.3	-	0.12	1.04	0.96	0.04	0.01	0.08	0.120
CD (P=0.05)	7.05	5.00	0.88	1.05	0.54	0.58	0.74	0.67	-	0.34	2.96	2.80	0.11	0.03	0.25	0.30

DS – Direct seeded, TR- Transplanted, F- Fertilized, UF – Unfertilized, DS – Days after sowing

Table 1. Major insect pests on rice during wet season

Vernacular name	Scientific name	Period of activity
White backed planthopper	<i>Sogatella furcifera</i> Hovarth	July-Aug.
Green leafhopper	<i>Nephoteltix virescens</i> Distant	July-Aug.
Rice grasshopper	<i>Hieroglyphus banian</i> Fabricius	July-Oct. *
Horned caterpillar	<i>Melantis leda ismene</i> Cramer	Aug.
Rice caseworm	<i>Nymphula depunctalis</i> Guenee	Aug.
Rice leaf folder	<i>Cnaphalocrosis medinalis</i> Guen.	Aug.-Sept. *
Rice hispa	<i>Dicladispa armigera</i> Oliv.	Aug.-Sept. *
Yellow stem borer	<i>Scirpophaga incertulas</i> Walker	July-Oct.
Gundhi bug	<i>Leptocorisa varicornis</i> Fabricius	Sept.-Oct.
Armyworm (swarming)	<i>Spodoptera mauritia</i> Bosid	Aug.-Sept.*
Armyworm (climbing)	<i>Pseudaletia separate</i> Walker <i>Mythimna separate</i> Walker	Sept. – Oct.
Rice gall midge	<i>Orseolia oryzae</i> Wood Mason	Aug. – Sept.

The spread of this pest was prevalent strong inverse relationships at all growth stages. These results are in close conformity with the observations of several workers (Pophaly and Gupta 1995; Tripathi *et al*, 1997; and Bhatnagar and Saxena, 1999).

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