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Management of major insects and diseases in irrigated rice cultivation by the farmers

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Abstract

The present study was conducted to find out the status of major insects and diseases and utilization pattern of agro-chemicals in irrigated rice cultivation by the farmers of Dhamtari district in Chhattisgarh State. The analysis on major insect in irrigated rice crop revealed that majority of the respondents marked Yellow stem borer (*Scirpophaga incertulas*) as major insect, followed by Brown plant hopper (*Nilaparvata lugens*). The analysis on insect management practices in irrigated rice crop revealed that all the respondents were using chemical practices as major management practice, followed by physical practices. The analysis on major insecticides used in irrigated rice revealed that Chlorpyrifos 20% EC was popular insecticide, followed by Quinalphos 25% EC. In irrigated rice, major disease was found Blast, followed by Brown spot. The analysis on disease management practices in irrigated rice crop revealed that all the respondents were using chemical practices as major management practice, followed by physical practices. Majority of the respondents were using Carbendazim as major fungicide in irrigated rice crop, followed by Hexaconazol 5% EC.

Keywords: Insect pest, agrochemicals

Introduction

The Chhattisgarh state was carved out of Madhya Pradesh on November, 2000. It covers about one-third of geographical area of undivided Madhya Pradesh. The Chhattisgarh extends South-East of Madhya Pradesh from 17° 46' N to 24° 5' N latitude and from 80° 15' E to 84° 20' E longitudes.

Rice is an important crop grown in nearly 44 million ha of land in the country with the productivity of 2.2 t/ha which is less than the productivity of many countries. Annual population growth rate of the country is nearly 1.8 % and per capita consumption of rice is expected to be 400 gm of rice per day then the demand for rice in 2025 will be 130 million tonnes. In Chhattisgarh state, rice occupies average of 3.6 million ha with the productivity of the state ranging between 1.2 to 1.6 t/ha depending upon the rainfall. Rice crop in the field is attacked by numerous guilds of insect-pests, but few causes significant losses. Losses caused by the insect-pests are the main constraints in achieving high yield of rice (Rai *et al.*, 2000) [3]. In Chhattisgarh region, various rice pests are causing losses up to 20 per cent every year. Pesticides together with fertilizers and high yielding varieties have helped Indian farmers to achieve significant increase in crop productivity. For example, the yield of two most pesticides using crops, cotton and rice increased by a factor of 1.9 times and 1.8 times respectively. During the initial years of green revolution, the effectiveness of pesticides was so unambiguous that soon it over-showed the traditional methods of pest control. According to one estimate, every rupee spent in chemical pest control helps saving crop output worth Rs. 3. The average per hectare consumption of pesticides in India had increased from 3.2 gm in 1954-55 to 570 gm in 1996 (Bami, 1996) [1]. The present use of pesticides in India was 580 gm per hectare which is very low as compared to Taiwan (17 kg/ha) followed by Japan (16.5 kg/ha) and in the US it is 4.5 kg/ha (Kumarswamy, 2008) [2].

Material and Methods

The study was conducted in Dhamtari district of Chhattisgarh State during 2017-18. The Chhattisgarh State consists of 27 district, out of which Dhamtari district was selected purposively due to highest per cent of irrigated area and agro-chemicals use. This study was conducted in randomly selected 10 villages of Dhamtari and Kurud block with sample comprised 120 respondents. The data was collected through personal interview schedule.

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The collected data were analyzed with the help of suitable statistical methods and tools.

Results and Discussion

The analysis on major insect in irrigated rice crop (Table-1) revealed that majority of the respondents (90.8 per cent) marked Yellow stem borer (*Scirpophaga incertulas*) as major insect-pest, followed by 78.3 per cent respondents facing the problem of Brown plant hopper (*Nilaparvata lugens*), 65.8

per cent Cut worm (*Mythimna seperata*), 52.5 per cent Green leaf hopper (*Nephotettix virescens*), 47.5 per cent Leaf folder (*Cnaphalocrocis medinalis*), 35 per cent Gundhi bug (*Leptocorisa oratorius*) and minor group of respondents 26.7 per cent were facing the problem of gall midge (*Orseolia oryzae*).

These findings find support from the work of Simon Alibu *et al.* (2016) [4].

Table 1: Distribution of respondent according to occurrence of major insect in their rice field

S. No.	Categories	Frequency*	Percentage
1.	Yellow stem borer (<i>Scirpophaga incertulas</i>)	109	90.8
2.	Leaf folder (<i>Cnaphalocrocis medinalis</i>)	57	47.5
3.	Brown plant hopper (<i>Nilaparvata lugens</i>)	94	78.3
4.	Green leaf hopper (<i>Nephotettix virescens</i>)	63	52.5
5.	Gundhi bug (<i>Leptocorisa oratorius</i>)	42	35.0
6.	Cut worm (<i>Mythimna seperata</i>)	79	65.8
7.	Gall midge (<i>Orseolia oryzae</i>)	32	26.7

*based on multiple response

The analysis on insect management practices in irrigated rice crop (Table-2) revealed that all the respondents (100%) were using chemical practices as major management practice, followed by physical practices followed by 63.3 per cent

respondents, 56.7 per cent respondents using cultural practices, 20.8 per cent respondents using integrated management practices and minor group of respondents (19.2%) were using biological practices.

Table 2: Distribution of respondents according to management of major insects

S. No.	Categories	Frequency*	Percentage
1.	Chemical practices	120	100.0
2.	Cultural practices	68	56.7
3.	Physical practices	76	63.3
4.	Biological practices	23	19.2
5.	Integrated management practices	25	20.8

*based on multiple response

The analysis on major insecticides used in irrigated rice (Table-3) revealed that Chlorpyrifos 20% EC marked as major insecticide with a percentage of 85.8, followed by Quinalphos 25% EC with 77.5 per cent respondents using it, 74.2 per cent respondents using Imidacloprid 17.8% SL, 53.3 per cent respondents using Lambda-cyhalothrin 5 SC,

52.5 per cent using Chlorpyrifos 50% + Cypermethrin 5% EC, 42.5 per cent using Chlorantraniliprole 0.4% GR, 40 per cent using, and minority group were using Cartap hydrochloride 50% SP, Phorate 10% G, and Buprofenzine 25% EC with a Percentage of 31.7, 2.7 and 19.2 respectively.

Table 3: Distribution of respondents according to application of major insecticides

S. No.	Categories	Frequency*	Percentage
1.	Chlorpyrifos 20% EC	103	85.8
2.	Lambda-Cyhalothrin 5% SC	64	53.3
3.	Chlorantraniliprole 0.4% GR	51	42.5
4.	Imidacloprid 17.8% SL	89	74.2
5.	Phorate 10%G	32	26.7
6.	Buprofenzine 25% EC	23	19.2
7.	Chlorpyrifos50%+Cypermethrin 5%EC	63	52.5
8.	Prophenophos 50% EC	48	40.0
9.	Quinalphos 25% EC	93	77.5
10.	Cartap hydrochloride 50% SP	38	31.7

*based on multiple response

Similarly, analysis on major diseases in irrigated rice (Table-4) revealed that major disease was Blast with 94.2 per cent respondents facing it, followed by 89.2 per cent respondents facing Brown spot, 80 per cent respondents facing Sheath

blight, followed by 67.5 per cent facing False smut, 56.7 per cent facing Bacterial leaf blight and 12.5 per cent respondents facing Khaira as major disease in irrigated rice.

Table 4: Distribution of respondents according to occurrence of major disease in their rice field

S. No.	Categories	Frequency*	Percentage
1.	Blast	113	94.2
2.	Sheath blight	96	80.0
3.	Brown spot	107	89.2
4.	False smut	81	67.5
5.	Bacterial leaf blight	68	56.7
6.	Khaira	15	12.5

*based on multiple response

The analysis on disease management practices in irrigated rice crop (Table-5) revealed that all the respondents (100%) were using chemical practices as major management practice, followed by physical practices with 53.3 per cent respondents

using it, 43.3 per cent respondents using cultural practices, 20.8 per cent respondents using integrated management practices and minor group of respondents (15.8%) were using biological practices.

Table 5: Distribution of respondents according to adoption of management practices of major diseases in their rice field

S. No.	Categories	Frequency*	Percentage
1.	Chemical practices	120	100.0
2.	Cultural practices	52	43.3
3.	Physical practices	64	53.3
4.	Biological practices	19	15.8
5.	Integrated management practices	25	20.8

*based on multiple response

The analysis of agro-chemicals used for management of major diseases in irrigated rice revealed that majority (91.7%) respondents were using Carbendazim 46.27% SC as major pesticide in irrigated rice crop, followed by 80 per cent respondents using Hexaconazole 5% EC, 75.8 per cent

respondents using Thifluzamide 24% SC, 69.2 per cent using Mancozeb 75% WP, 65 per cent using Streptomycin 17% WP, and minority were using Validamycine 75% WP as major pesticide.

Table 6: Distribution of respondents according to application of chemicals for disease control

S. No.	Categories	Frequency*	Percentage
1.	Hexaconazol 5% EC	96	80.0
2.	Carbendazim 46.27% SC	110	91.7
3.	Thifluzamide 24%SC	91	75.8
4.	Streptomycin 17% WP	78	65.0
5.	Validamycine 3% L	36	30.0
6.	Mancozeb 75% WP	83	69.2

*based on multiple response

Conclusion

Thus, from analysis it was concluded that in irrigated rice crop, majority of the respondents marked Yellow stem borer (*Scirpophaga incertulas*) as major insect followed by Brown plant hopper (*Nilaparvata lugens*) and chemical practices followed by physical practices were reported as major insect management practice and Chlorpyrifos 20% EC as major insecticide followed by Quinalphos 25% EC for management. Also, Blast was found as major disease followed by Brown spot and chemical practices followed by physical practices were reported as major disease management practice and Carbendazim followed by Hexaconazol 5% EC were reported as major fungicide.

and perceptions on rice insect pests and their management in Uganda, 2016.

References

1. Bami HL. Pesticide Use in India Ten Questions. Pest. Information. 1996; 21(4):19-26.
2. Kumarasamy S. Crop Loss due to Pest Attack Pegged at Rs.1.40 lakh crores. Crop Care. 2008; 33(4):73-74.
3. Rai K, Sinha RBP, Singh AK. Effect of abiotic factors on the population of rice leaf folder. Ann. Pl. Protec. Sci. 2000; 8:154-158.
4. Simon Alibu, Michael H Otim, Stella EA Okello, Jimmy Iamo, Moses ekobu, Godfrey Asea. Farmer's knowledge