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Comparative study of new insecticide for the effective management of rice stem borer

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Abstract

In order to examine the efficacy of different chemical insecticides against rice stem borer, a field study was conducted at Regional Agril. Research Station, Karjat under AICRP Programme during *Kharif* 2017. For the said investigation total 9 treatments were evaluated. The overall mean per cent result revealed that Treatment Spinetoram 6% + methoxyfenzoide 30% @0.75gm/lit was found most effective treatment for management of stem borer with minimum (0.7%) incidence followed by treatment DPX -RAB 55 @ 0.75gm/lit (1.06%), incidence. Regarding yield of crop, highest yield (37.3 q/ha) was recorded in treatment DPX-RAB 55 @ 0.48@gm/lit followed by treatment Spinetoram 6% + methoxyfenzoide 30% @0.75gm/lit (35.6 q/ha).

Keywords: new insecticide, effective management, rice stem borer

Introduction

Rice (*Oryza sativa* L.) (2n = 24) belonging to the family Graminae is one of the prominent cereal crop of the world. It is staple food crop for more than two-third of the world population (Tiwari *et al.* 2014) [13]. Among various insect-pests infesting rice yellow stem borer, *Scirpophaga incertulas* (Walker) is economically important insect-pest. Stem borer infestation at vegetative stage of crop produces dead heart symptoms while infestation at reproductive stage produces white ear. Stem borer is responsible for an annual loss of 10-15% of rice crop (Daryaei, 2005) [1]. If timely control measures are not taken up, there may be possibility of total crop loss within very short period. Hence to prevent the losses cause by insect pest. For effective management of stem borer, efficacy of newer insecticides against rice stem borer need to be studied. Keeping these facts in view the present investigation was propose to study Efficacy of some new insecticides against rice stem borer.

Methodology

A field experiment was conducted to study the efficacy of some new insecticides against rice stem borer at Regional Agriculture Research Station, Karjat (M.S.), under AICRP, during *Kharif* 2017. Total eight newer insecticides were tested against rice stem borer. Total eight treatments were evaluated against stem borer under randomized block design. The observation was recorded by counting damage done by yellow rice stem borer i.e. dead hearts (DH) during vegetative stage and white ear heads (WEH) during panicle initiation stage. Pre-treatment observation was recorded 24hrs before first spray. Commencing pest incidence on rice spraying was undertaken. The data thus obtained was subjected to appropriate transformation and analyzed statistically. The per cent damage was calculated by using following formula:-

$$\text{Per cent damage for Stem borer} = \frac{\text{No. of dead hearts/ White ear heads}}{\text{Total no. of tillers/ panicle per hill}} \times 100$$

Results

The data on per cent infestation of stem borer prior to insecticide application ranged from 10.56 to 14.42. There was no significant difference among the different treatments since uniform distribution of stem borer infestation was noticed in different treatments.

After first spraying of insecticides the result revealed that Treatment DPX -RAB 55 @ 0.48gm/lit was found most effective treatment for management of stem borer with minimum (1.21%) incidence followed by treatment Spinetoram 6%+methoxyfenzoide 30% @0.75gm/lit

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which recorded (1.83%) incidence, Mantis 75 WP @0.6 ml/lit. (2.25%), Spinetoram 6% + methoxyfenozide 30% + Contaf @0.75 gm+ 2.0 ml/lit (2.35%) incidence. The remaining all the treatments were found significantly superior over untreated control except Contaf Plus @2ml/lit which recorded maximum 5.74 per cent stem borer incidence.

After Second spraying result revealed that Treatment Spinetoram 6% + methoxyfenozide 30% @0.75gm/lit was found most effective treatment for management of stem borer with minimum (0.7%) incidence followed by treatment DPX - RAB 55 @ 0.75gm/lit (1.06%), Spinetoram 6% + methoxyfenozide 30% +Baan@ 0.75gm+ 0.6ml/lit (1.09%), Spinetoram 6% + methoxyfenozide 30% +contaf@ 0.75gm +2.0ml/lit (1.39%) incidence. The remaining all the treatments were found significantly superior over untreated

control. The maximum stem borer incidence was recorded in untreated control i.e. (1.8%).

Regarding yield of crop, highest yield (37.3 q/ha) was recorded in treatment DPX-RAB 55 @ 0.48@gm/lit followed by treatment Spinetoram 6% + methoxyfenozide 30% @0.75gm/lit (35.6 q/ha), Spinetoram 6% + methoxyfenozide 30% +Baan@ 0.75gm+ 0.6ml/lit (34.4 q/ha), Spinetoram 6% + methoxyfenozide 30% +contaf@ 0.75gm +2.0ml/lit (31.9q/ha). The lowest yield was recorded in untreated control plot i.e. (19.1q/ha) Rajpoot *et al.* (2019) [2] reported that among all treatments, T7 DPX-RAB 55+Contaf (Triflumezopyrim +Hexaconazole) was found most effective against yellow stem borer of rice followed by treatments, T8-DPX-RAB 55+Mantis (Triflumezopyrim + Tricyclazole), T2-DPX-RAB 55.

Table 1: Efficacy of some new insecticides against rice stem borer

Sr. No.	Treatment	Stem borer incidence (%)			Yield (q/ha)
		Pre Count	1st	2nd (Pre-harvest)	
1	Spinetoram 6%+methoxyfenozide 30% @0.75 gm/lit.	14.42 (22.3)	1.83 (7.71)	0.7 (4.8)	35.6
2	DPX-RAB 55 @0.48 gm/lit.	11.38 (19.73)	1.21 (6.29)	1.06 (6.02)	37.3
3	Contaf Plus @2 ml/lit.	13.11 (21.22)	5.74 (13.81)	1.78 (7.71)	27.4
4	Mantis 75 WP @0.6 ml/lit.	12.17 (20.44)	2.25 (8.53)	2.04 (8.13)	23.3
5	Spinetoram 6%+methoxyfenozide 30%+Contaf @0.75 gm+ 2.0 ml/lit.	11.22 (19.55)	2.35 (8.72)	1.39 (6.8)	31.9
6	Spinetoram 6%+methoxyfenozide 30%+Baan @0.75 gm+ 0.6 ml/lit.	11.97 (20.27)	3.55 (10.78)	1.09 (6.02)	34.4
7	DPX-RAB55+Contaf @0.48 gm + 2.0 ml/lit.	10.56 (19)	5.04 (12.92)	1.55 (7.04)	29.5
8	DPX-RAB55+Baan @0.48 gm+ 2.0 ml/lit.	10.97 (19.37)	4.93 (12.79)	1.8 (7.71)	25.3
9	Untreated control	12.49 (20.7)	5.33 (13.31)	1.8 (11.24)	19.1
	S.E. ±	1.42	2.19	1.76	
	C.D. at 5%	4.25	6.59	5.29	

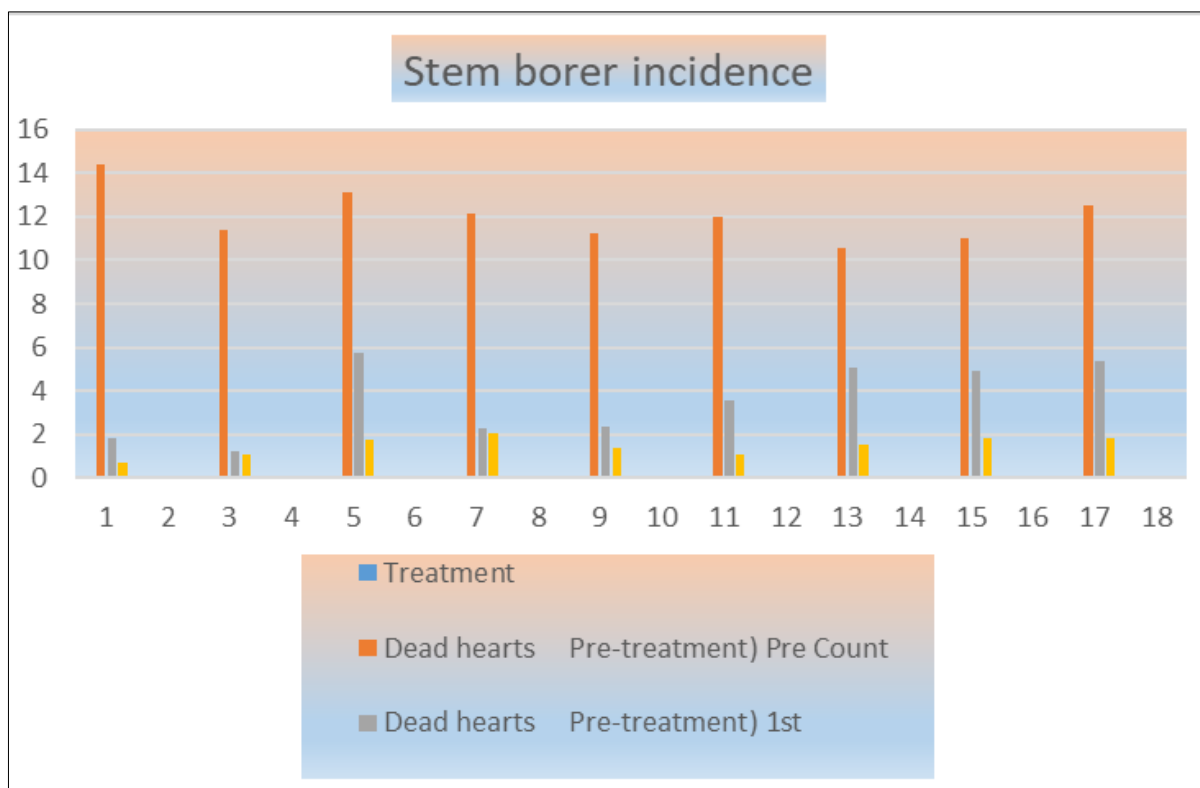


Fig 1: Efficacy of some new insecticides against rice stem borer

Conclusion

The above research on Evaluation of Efficacy of some new insecticides against rice stem borer revealed that Treatment Spinetoram 6% + methoxyfenozide 30% @0.75gm/lit was

found most effective treatment for management of stem borer with minimum (0.7%). Regarding yield of crop, highest yield (37.3 q/ha) was recorded in treatment DPX-RAB 55 @ 0.48@gm/lit.

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