Research Paper :

Evaluation of New Chemical Molecules for the Managaement of *Scirpophaga incertulas* Walker, in Aerobic rice

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SUMMARY

Field experiment carried out at University of Agricultural Sciences, Bangalore. College of Agriculture Navile Shimoga, during *kharif* 2006 showed superiority of fipronil 0.3G @ 7.5 g a.i./ha followed by carbosulfan 6G @ 1000 g a.i./ha and carbofuran 3G @ 750 g a.i./ha which were moderately effective and cartap hydrochloride 4G @ 1000 g a.i./ha was least effective among the granular formulations. Among the spray formulations beta-cyfluthrin 2.5EC @ 12.5 g a.i ./ha was highly effective followed by monocrotophos 36 SL @ 500 g a.i./ha and flubendiamide 500 SC @ 24 g a.i./ha. The next best was indoxacarb 14.5 SC @ 30 g a.i./ha but imidacloprid 17.8 SL @ g a.i./ha and seed treatment of imidacloprid 70 WS @ 5ml/kg seed and lambda cyhalothrin 2.5 EC @ 12.5 g a.i./ha were less effective against rice yellow stem borer (YSB).

Key words : *Scirpophaga incertulas*, Fipronil, Carbosulfan, Beta-cyfluthrin, Flubendiamide, Lambda cyhalothrin.

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It is time to initiate movements like "More crop per drop" which has been quite successful in Israel. Aerobic rice is one such option to minimize water requirement for rice crop. Growing rice with aeration or under non-flooded condition is termed as aerobic rice. Traditionally rice is grown in uplands with low or no inputs is also referred as aerobic rice (Mishra, 2005). The rice stem borers, which infest the rice from seedling to maturity act as a major constraints for rice production (Dale, 1994; Pathak, 1975 and Anonyomus, 1969). The larvae of *Scirpophaga incertulas* cause dead hearts during vegetative stage and white ear heads during reproductive stage. Even though rice plant can compensate if dead heart infestation does not exceed 10 per cent, it cannot compensate for white ear loss. However, application of insecticides is the most commonly used measure for reducing pest population. Thus, it is imperative that alternative insecticides be explored for managing rice pests. The new insecticides should be effective in reducing the pest damage, cost effective, biodegradable, safer to natural enemies and other non-target organisms.

MATERIALS AND METHODS

A field experiment was conducted at University of Agricultural Sciences, Bangalore. College of Agriculture Navile Shimoga, to evaluate new chemical molecules of insecticides against YSB in rice variety Rasi, comprising of 12 treatments in a randomized block design during *kharif*, 2006. The new chemical molecules used were monocrotophos 36 SL @ 500 g a.i. /ha, imidacloprid 17.8 SL @ 20 g a.i. /ha, lamda cyhalothrin 2.5 EC @ 12.5 g a.i. /ha, beta-cyfluthrin 25 EC @ 12.5 g a.i. / ha, imidacloprid 70 WS @ 5 ml/kg of seeds, flubendiamide 500 SC @ 24 g a.i. /ha, indoxacarb 14.5 SC @ 30 g a.i. /ha, carbofuran 3G @ 750 g a.i. /ha (Standard check), carbosulfan 6G @ 1000 g a.i. /ha, cartap-Hydrochloride 4 G @ 1000 g a.i. /ha, and fipronil 0.3G @ 7.5 g a.i. /ha along with untreated check.

All agronomic practices were followed as per the recommendations, except for YSB control. The granular and spray formulations were applied thrice at 30, 60 and 80 days after sowing (DAS), a single chemical was used for all the three applications and their efficacy was evaluated. To avoid intermixing of treatments, about 20 to 30 cm thick were prepared all around plots having the treatments of granular insecticides. Using knapsack sprayer with hollow cone nozzle spray applications was made @ 300-600 litres spray fluid per hectare depending on crop growth stages. Drifting from one plot to another was avoided by using plastic sheet at the time of spraying. For seed treatment, sprouted seeds were soaked in imidacloprid 70 WS (5 ml per kg seed) solution