

Compatibility and Bio-efficacy of Certain Insecticides in Combination with Zinc against Yellow Stem Borer, *Scirpophaga incertulas* (Walker) in Rice

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ABSTRACT

Eleven commonly used insecticides viz., chlorpyrifos 20 EC, chlorpyrifos 50 EC, monocrotophos 36 SL, cartap hydrochloride 50 SP, profenophos 50 EC, acephate 75 SP, imidacloprid 200 SL, thiamethoxam 25 WG, lambda cyhalothrin 2.5 EC, flubendiamide 39.35 SC, chlorantraniliprole 18.5 SC were tested for their physical compatibility with three zinc formulations viz., zinc sulphate (zinc monohydrate 33%), chelated zinc (EDTA 12%) and zinc sulphate (21%). Further, the test chemicals at all the 33 possible combinations (insecticide + zinc formulation) and alone were tested for phytotoxicity during *rabi*, 2013-14 and evaluated for their bio-efficacy against yellow stem borer, *Scirpophaga incertulas* (Walker) during *rabi*, 2014-15. All the insecticide + zinc combinations tested were physically compatible and did not show phytotoxicity on rice crop. Among the insecticides sprayed alone, the stem borer incidence was significantly lower in chlorantraniliprole with 1.4% dead hearts followed by cartap hydrochloride (1.5% dead hearts), whereas highest dead heart damage was recorded in imidacloprid (7.2%) followed by thiamethoxam (6.9%). Stem borer incidence ranged from 6.8 to 8.2% dead hearts in plots treated with zinc formulations. Similar trend of stem borer damage was observed even when mixed with zinc formulations. None of the insecticide + zinc combinations had caused any negative effect on the bio-efficacy of insecticides against stem borer.

Keywords: *Bio-efficacy, Compatibility, Insecticides, Rice, Yellow stem borer and Zinc.*