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Select Theme	: Sustainable and equitable farming systems
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Keyword 1	: Pest management
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Title of Entry	: Monitoring of insecticide resistance in rice brown planthopper Nilaparvata lugens (Stål) population of Nalgonda District of Telangana State, India
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Select only one type of presentation	: 15 minute oral presentation
Abstract	: Brown planthopper-BPH Nilaparvata lugens (Stål) (Hemiptera:Delphacidae) has become a serious problem causing severe yield losses in thousands of acres for the past 6-7 years in Nalgonda district-Telangana state-India due to monoculturing of susceptible varieties, assured irrigation, indiscriminate use of insecticides. There is significant decline in efficacy of neonicotinoids and buprofezin against BPH over years. Monitoring of insecticide resistance should form a part of BPH management strategy to overcome this problem. The present study was undertaken to monitor insecticide resistance in BPH population in Nalgonda district during 2015, by collecting field populations and rearing in the greenhouse to assess extent of control failure and insecticide resistance development to neonicotinoids, buprofezin and other insecticides. The test insecticides include imidacloprid (Confidor-17.8SL), thiamethoxam (Actara-25WG), dinotefuran (Osheen-20SG), monocrotophos (Monostar-36SL), acephate (Starthene-75WP), dichlorovas (Nuvan-76EC), chlorpyriphos (Dursban-20EC), fipronil (Regent-5SC). pymetrozine (Chess-25WG), buprofezin (Applaud-25SC) and combination product Ethiprole 40%+Imidacloprid 40% (Glamore-80WG). Insecticidal formulations were sprayed on rice plants at different concentrations and mortality was assessed after 24, 48, 72 hours of exposure Final concentrations for each insecticide were chosen after initial exploratory trials so that 3 concentrations resulted in mortalities below 50% and three in mortalities above 50%. Tap water spray served as control. LC50 and LC90 values were computed using POLO software. BPH present in IIRR greenhouse for the last 15 years without any exposure to insecticides served as susceptible strain. Resistance ratios (RR) were worked out at LC50, LC90 levels with field BPH as resistant strain. Resistance levels were classified as follows: susceptibility-(RR=1), decreased susceptibility-(RR=>3-5), low resistance-(RR=>5-10), moderate-resistance-(RR=>10-40), high resistance-(RR=>40-160), and very- high- resistance- (RR>160). Nalgonda BPH population acquired very high level of resistance to buprofezin (1409 fold) and imidacloprid (352-661 fold). High level of resistance to thiamethoxam (50-138 fold) and glamore (222-431 fold) was observed. However, the population was suseptible to dinotefuran 20SG (RR 1.5-3.6), monocrotophos, dichlorvos, chlorpyriphos and acephate (RR 0.28 to 2.02). For insecticides belonging to other groups such as phenyl pyrazoles - fipronil and pyridine azomethine compound -pymetrozine, the resistance ratios (were in the order of 1.4 to 1.9 and 1.19 to 1.59, respectively. Insecticide resistance management strategies are described in brief. Read Less»

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