

# Preliminary Study on Resistance of the Rice Stem Borer (*Chilo Suppressalis*) to Fipronil [PDF]

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摘要: By means of topical application, fipronil resistance was surveyed in the rice stem borer, *Chilo suppressalis*, from 12 different areas in east China from 2001 to 2004. The rice stem borers in most regions of Jiangsu and Anhui were still susceptible to fipronil. But in Wuxi, Jiangsu Province and Cixi, Zhejiang Province, their sensitivity became decreased (resistance ratios were 3.1 and 3.6, respectively), and the medium level of resistance (resistance ratio was 21.2) was found in Cangnan, Zhejiang Province. So, it was still at the early stage for fipronil resistance development in this pest. Synergism experiments showed that piperonyl butoxide(PBO) had a little effect on both susceptible and resistant borers (synergism ratios were 1.1–1.2). Though triphenyl phosphate (TPP) and diethyl meleate (DEM) had no effect on the susceptible borers, they had significant synergism on fipronil in the resistant population to fipronil (synergism ratios were 1.8 and 1.6, respectively), indicating esterase and glutathion S-transferase may be involved in the resistance mechanism. Bioassay with currently used insecticides indicated that triazophos (because of high resistance), trichlorphon and acephate had very low toxicity to resistant borers. But diazinon, pyridaphenthion, decamethrin and avermectin showed high toxicity and had no cross resistance to fipronil, which could be considered as substitute insecticides in the resistance managment.

关键词: *Chilo suppressalis*; fipronil; resistance; relative toxicity

*Rice Science*. 2005, 12(4): 295-298

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