

Benzpyrimoxan: An Insecticide for the Control of Rice Plant Hoppers

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Abstract : Rice plant hoppers (Hemiptera: Delphacidae) have been causing extensive economic damage in rice and are considered as serious threat in rice producing countries of Asia. They have developed resistance to major groups of chemical insecticide, and severe outbreaks occur commonly throughout Asia. To control these nuisance pests, Nihon Nohyaku Co., Ltd., recently discovered an insecticide, benzpyrimoxan (proposed ISO name), which is under development as NNI-1501 (development code). Benzpyrimoxan has a unique chemical structure which contains benzyloxy and cyclic acetal groups on pyrimidine moiety (5-(1,3-dioxan-2-yl)-4-[4-(trifluoromethyl)benzyloxy]pyrimidine). In order to clarify the biological properties of benzpyrimoxan, we conducted several experiments and found the following results. Benzpyrimoxan has high activity against nymphal stages of rice plant hoppers without any adulticidal activity. It provides excellent and long lasting control against rice plant hoppers, including populations that have developed resistance to several other chemical groups of insecticide. The study on its mode of action is undergoing. These features highlight the versatility of this insecticide as an effective and valuable tool from the viewpoints of insecticide resistance management and integrated pest management program. With the use of benzpyrimoxan, farmers shall be able to lead the best yield potential by keeping the population density of rice plant hoppers and associated virus diseases under control.

Keywords : acetal, benzpyrimoxan, insecticide, NNI-1501, pyrimidine, rice plant hoppers

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