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BSS249 : Preparedness for borer incursion : Summary of effectiveness of Tebufenozide for control of sugarcane stemborers

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QUEENSLAND, AUSTRALIA

BSS249 PREPAREDNESS FOR BORER INCURSION

SUMMARY OF EFFECTIVENESS OF TEBUFENOZIDE FOR CONTROL OF SUGARCANE STEMBORERS
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SUMMARY
Following a search of the literature and discussions with entomologists in Papua New Guinea and Louisiana, tebufenozide (Mimic®, Confirm® or RH-5992) was identified as a potential highly useful candidate insecticide for emergency use in Australia following an incursion of a stemborer.

Tebufenozide is an ecdysone agonist that acts by binding to the ecdysone receptor protein. The moulting process of treated insects is lethally accelerated. It is non-phytotoxic and shows little negative effect on populations of stemborer parasites and other beneficial insects. It is registered for use in USA against Diatraea saccharalis and is used successfully in Papua New Guinea against Sesamia grisescens.

Data included in this report demonstrate the effectiveness of tebufenozide against these two stemborer species and its minimal effects on beneficials. Data are also included on the chemical composition of the compound, its physico-chemical properties, toxicology and environmental fate.
1. INTRODUCTION

An effective insecticide will be an important component of any control strategy for an exotic stemborer of sugarcane should an incursion occur in Australia. To use any insecticide, an emergency use permit will have to be obtained from the National Registration Authority under their ‘Off-label permits for minor and emergency uses of agricultural and veterinary chemicals’. Before NRA issues such a permit, it must assess the proposed use to ascertain whether, amongst other aspects, the use will be effective in controlling the pest.

Sugarcane stemborers have considerable potential as incursion agents into Australia. Any insecticide used against stemborers needs to be effective, and also to have minimal side effects against beneficials, especially wasp parasites. These parasites are likely to be another important component of any IPM program for stemborers.

Literature searches have identified tebufenozide as an insecticide fitting these criteria of effectiveness and minimal side effects on beneficials. Tebufenozide (Mimic®, Confirm® or RH-5992) is an ecdysone agonist that acts by binding to the ecdysone receptor protein. The moulting process of treated insects is lethally accelerated, especially in lepidopterans. It is non-phytotoxic to sugarcane and shows little negative effect on populations of stemborer parasites and other beneficial insects. It is registered for use in USA against Diatraea saccharalis and is used successfully in Papua New Guinea against Sesamia grisescens. The product is manufactured by Rohm and Haas and marketed in Australia by Bayer Australia.

Data included in this report demonstrate the effectiveness of tebufenozide against these two stemborer species (Rodriguez et al. 1994, 1995; Kuniata 1999; Reagan and Posey 2001) and its minimal effects on beneficials (Woolwine et al. 1995; Reagan et al. 1997; Reagan and Posey 2001). Data are also included on the chemical composition of the compound, its physico-chemical properties, toxicology and environmental fate (Tomlin 1994).

2. REFERENCES


