

Effectiveness of insecticides rotation with different modes of action against oil palm bunch moth *Tirathaba mundella* (WALKER (Lepidoptera, Pyralidae))

ABSTRACT

Tirathaba mundella Walker has emerged as one of the most prominent bunch feeding pests in Sarawak peat oil palm estates. Insecticides application is inevitable to prevent economic loss. However, to protect insect pollinators which cohabit with the pest and reduce the risk of resistance development among the pest to insecticides, rotation treatments with more than one pollinator-friendly insecticides is recommended. This paper examines the effectiveness of rotating several pollinator-friendly insecticides in controlling the pest. To assess the effectiveness of different rotation combination, a field study on a seven-year-old peat estate was carried out using several insecticides combinations and application intervals, then the level of infestation post-treatment was assessed. Significantly, the results showed that only four single rounds of insecticides application in a year would yield relatively better control than nine rounds of *Bacillus thuringiensis* applications. Overall, there was no significant difference in clean bunches percentages obtained between five rounds of treatment compared to only four rounds per year. The result strengthens our confidence that the optimum and most cost-effective approach for one-year protection against *T. mundella* was two rounds of 30.0 g active ingredient of chlorantraniliprole per ha rotated with two rounds of 25.0 g active ingredient of chromafenozide. The material cost was calculated as RM 351.20 per ha per year. The findings of this study would benefit future pest management practice in oil palm plantation established on peatland.

Keyword: Bunch moth; Chlorantraniliprole; Oil palm; *Tirathaba mundella*