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## Evaluation on Cost and Efficacy of Herbicides to Eradicate *Merremia peltata* in Immature Oil Palm at Kinabatangan Region

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*Merremia peltata* is a perennial vine with large underground tuber. The smooth stem can climb to more than 20 m long and twine at the tips. A humid tropic up to 700 m sea level provides suitable habitat to the *Merremia peltata* seeds to sprout with fast growth rates. In Sabah, it is commonly found in the immature oil palm field and has become a type of endemic weed competing with the leguminous cover crops. Removal and eradication of these weeds are observed to be labour intensive, costly due to multiple rounds of herbicide treatment needed and most importantly, may impede oil palm growth if it is not adequately controlled. *Merremia peltata* is found to grow in Genting Plantations Berhad (GENP) estates in Kinabatangan region. A trial was conducted on hilly terrain planted with immature oil palm of 2 years old with the objective to evaluate the various types of herbicides (systemic and contact) to control *Merremia peltata* up to the extent of when the subsequent spraying is necessary. The annual rainfall recorded was around 3 000 mm. Equipment used in the trial was the Conventional Knapsack Sprayer (CKS), 16 L sprayer calibrated to 450 L for blanket spraying fitted with LSA/4 (green) nozzle. A range of single herbicides was evaluated and ranked accordingly to the results based on the product efficacy as well as cost-effectiveness. The herbicide treatments were MSMA+ diuron (2.3 and 3.0 L/ha), glufosinate-ammonium (3.3 L/ha), MSMA (2.8 and 3.9 L/ha), metsulfuron-methyl (250 and 350 g/ha) and triclopyr (1.5 and 2.0 L/ha). The post-treatment analysis was carried out based on visual observation at 1, 2, 4, 8, 12 and 16 weeks after treatment (WAT) on the percentage of *Merremia* killed and incidence of regeneration or no effect (0% = no effect /full regeneration, 100% = complete kill). Seven out of ten treatments recorded 100 per cent kill at 4 weeks after treatment. Triclopyr being the best treatment, giving more than 90 per cent kill as early as 2 WAT up to 8 WAT with more effective control contributing to the lowest regeneration stage at 5 per cent. Triclopyr was also the most cost-effective treatment estimated at RM13.95 per treated hectare (50 ml/16 L water) compared with other type of herbicides. MSMA+ diuron and glufosinate-ammonium were ranked the second and third herbicides whose results were similar to triclopyr but with higher cost per treated hectare ranging from RM25 – RM45. Overall, subsequent round of herbicides treatment would be required every 3 months to control *Merremia peltata*.

**Keynote:** *Merremia peltata*, immature oil palm, herbicide evaluation.

