

Resin-coated Controlled Release Fertilizer (CRF) for Oil Palm: Laboratory and Main Nursery Evaluation

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Abstract : Controlled release fertilizer (CRF) enables a regulated nutrients release for more efficient plant uptake compared to the normal granular fertilizer. It reduces nutrients loss via surface run-off and leaching, hence promotes sustainable agriculture. Although the performance of CRF in providing consistent and timely nutrients supply is well known, its expensive price limits its usage in a large scale plantation. This study is conducted to evaluate the properties and performance of bio-based polyurethane (PU)-coated CRF via laboratory and oil palm main nursery trial. The CRF is produced by coating of a normal commercial compound granular fertilizer from FGV Fertiliser Sdn. Bhd., namely Felda 10 (10.5-8-20-3+0.5B), and designated as CRF FGV10. Based on laboratory evaluation, the CRF FGV10 can sustain nutrients release for more than 6 months. Vegetative growth parameters such as girth size, palm height, third frond length, and the total number of fronds produced were recorded. Besides that, dry biomass of the oil palm seedlings was also determined. From the evaluation, it is proved that at 50% reduction of nutrients application rate and for only two times application (T3), CRF FGV10 enabled the oil palm seedlings to achieve similar vegetative growth with the control samples (T1). It is also proven that only PU-coated CRF FGV10 had allowed the reduction of fertilizer rate and application rounds.

Keywords : nutrition, oil palm seedlings, polyurethane, sustainable manuring, vegetative growth

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